COUNTY BOROUGH OF WARRINGTON.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

SANITARY CONDITION OF WARRINGTON

WITH

TABULAR RETURNS

OF THE

SICKNESS AND MORTALITY DURING
THE YEAR 1908,

ALSO

THE REPORT OF THE INSPECTOR OF NUISANCES.

WARRINGTON:
MACKIE AND CO. LD., GUARDIAN OFFICE.

OFFICIALS

OF THE

Public Health Department.

Medical Officer of Health, Medical Superintendent of the Corporation Hospitals, and Medical Adviser to the Education Committee :

J. COOTE HIBBERT,
M.D. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.P.H. (Lond.).

Assistant Medical Officer of Health :

CECIL WM. HUTT,
M.A. B.C. (Cantab.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.P.H. (Oxon)

Chief Inspector of Nuisances and Inspector under the Food and Drugs Act :

* WALTER T. FLOOD.

Assistant Sanitary Inspectors :

* JOHN TAYLOR. * JOHN STEVENS.
* JAMES SNAILHAM.

Clerks : JOHN PERCIVAL. * ARTHUR ISHERWOOD.

Inspector of Midwives and Health Visitor :

† MISS E. G. PAKES.

School Nurse :

MISS A. SPENCE.

Superintendent of Nurses, Isolation Hospitals:

MISS ASHFORTH.

* Holds the Certificate of the Sanitary Institute.

† Holds the Certificate of the Central Midwives Board.

County Borough of Warrington.

1908-9.

HEALTH COMMITTEE.

Mayor

W. J. FORSHAW, Esq., J.P.

Chairman:

Mr. Councillor JAMES EVANS, J.P.

Deputy-Chairman:

Mr. Alderman BURTON, J.P.

Mr. Alderman TINNION, J.P.
,, ,, JOHN EVANS.
,, Councillor BARTON.
,, ,, BROADHURST

Councillor Dr. JOSEPH.
Mr. Councillor SANKEY.
,, ,, WILKINSON, J.P.
,, ,, WILSON.

Town Clerk:

J. LYON WHITTLE, Esq.

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To the Chairman and Members of the
Health Committee.

Gentlemen,—

I beg to submit to you my second Annual Report, viz:—that for the year 1908.

VITAL STATISTICS.—The death-rate from all causes for the year was 17·0, and the Zymotic death-rate 2·6 per 1,000 population, while the Infantile death-rate per 1,000 births was 134. These figures show a slight increase on those for the preceding year, which were respectively 15·7, 2·1 and 122. When compared with the average of those for the 76 Great Towns of England and Wales (see page 14), the Warrington rates (and especially the Zymotic rate), are seen to be somewhat in excess of these averages. The only special disease which accounted to any extent for the higher death-rates during the year was Whooping Cough, 60 deaths having been attributed to this disease as compared with 11 during 1907. There has also been a slight increase in the number of deaths due to Enteric Fever, Influenza and Diarrhœa; on the other hand a decrease in the number from Measles is recorded. The higher Infantile death-rate is almost entirely accounted for by the increased number of deaths among infants from Whooping Cough.

ZYMOTIC DISEASES (see page 17).—As regards the notifiable infectious diseases, the main points to be noted are the continued prevalence of SCARLET FEVER in a mild form, the definite increase in the number of cases of DIPHTHERIA, and the occurrence of a small outbreak of ENTERIC FEVER in the early part of the year which was the subject of a special report (see appendix, page 69).

In connection with the non-notifiable infectious diseases, it is a somewhat startling fact that the two diseases, WHOOPING COUGH and MEASLES, which are often deemed but trivial ailments, accounted for 86 deaths, while the three notifiable diseases, Scarlet Fever, Diphtheria and Enteric Fever, together caused only 43 deaths.

TUBERCULOSIS has again claimed during the year a larger number of victims than any other disease, 141 deaths, or about $\frac{1}{8}$ of the total number of deaths from all causes, having been attributed to this malady. In my report for 1907 the sources from which infection is derived were dealt with and the desirability of making use of Sankey Sanatorium for the treatment of early cases was suggested.

Except for the admission of a few cases of Pulmonary Tuberculosis into a hut in the grounds of the Aikin Street Isolation Hospital during the Summer months, the only special effort to deal with the disease in the Borough has been by obtaining the voluntary notification of cases. Such patients are subsequently visited and advice is given on the need for cleanliness and ventilation of the home, and on the precautions necessary to prevent the spread of infection to others; spit-bottles and disinfectants are supplied and the rooms occupied by the patients, together with bedding, etc., are disinfected when occasion arises.

88 cases were voluntarily notified during the year.

The Public Health (Tuberculosis) 1908 Regulations, which came into force at the beginning of the present year (1909), enjoin the notification to the Medical Officer of Health of those cases of Pulmonary Tuberculosis, whether at home or in Poor Law Institutions, which come under the care of Poor Law Medical Officers. The Superintending Officers of Poor Law Institutions are also required, on the departure of a notified case of Pulmonary Tuberculosis from such an institution, to notify the intended address of the patient to the Medical Officer of Health of the district in which the case is about to reside; and Relieving Officers must make known any change of address of notified cases to the Medical Officer of Health for the area in which the changed residence of the poor person is situate.

Subsequently to the making of these regulations, a memorandum was issued by the Medical Officer of the Local Government Board on the administrative measures necessary in order that the disease may be adequately dealt with. These suggested measures comprise:—

(1) Educational measures as regards the disease, comprising means for instructing (a) members of the general community (b) those more directly exposed to the infection of tuberculosis and (c) those already tuberculous.

(2) The provision of facilities for securing an early diagnosis of the disease by such means as bacteriological examinations and adequate dispensary and hospital aid.

(3) The investigation of cases of the disease, including the giving of advice as to the prevention of the spread of infection, the supply of spit-bottles, and the disinfection and cleansing of infected rooms, articles, etc.

(4) The provision of sanatoria (a) for the somewhat prolonged treatment of early cases of the disease with the hope of complete cure and (b) for the shorter treatment of cases in order to ameliorate their condition and to train them in hygienic habits which may be continued on their return home.

(5) The provision of institutions for the accommodation, and consequent isolation, of advanced cases.

(6) The provision of Tuberculosis Dispensaries.

In connection with Tuberculosis it is interesting to note that the most recent report issued by the Royal Commission investigating the subject has supplied further proof that the milk from a tuberculous cow may contain tubercle bacilli without there being any sign of disease in the udder. This is a very important point as the chief powers which most Sanitary Authorities possess with respect to tuberculous cows are limited at present to the dealing with animals which have diseased udders.

The present report also gives abundant proof that the dung from tuberculous cows is frequently teeming with tubercle bacilli; and another argument is thus supplied, if indeed one is wanted, for the need of scrupulous care being observed during the process of milking, so that contamination of the milk with particles of dung falling into the milking pail from the unwashed udders and from the cow's flanks, or contained in the dust floating about the cowshed, may be prevented. Many of the present insanitary cowsheds must be thoroughly infected with tubercle bacilli given off by generations of tuberculous cows, and consequently milk sent out from such premises may become infected with the bacilli even after it has left the cow. As most of the milk supplied to Warrington comes from dairy farms situated outside the Borough, the direct dealing with this question rests for the most part with other Authorities, but it is none the less an important matter to milk-consumers in the Borough.

The retail of milk on the small scale by numerous vendors from premises quite unsatisfactory for the purpose has formed the subject of a report to the Committee, and, although the dealing with the matter has been deferred until the provisions of the promised Milk Bill are known, it is to be hoped that the sale of this food, which is so easily infected, and which forms so important a part of the diet of infants and invalids, will soon be put under such restrictions as will tend to ensure its freedom from contamination.

THE GENERAL SANITARY CONDITION OF THE BOROUGH.—In my report for 1907 I laid great stress on the importance of the expeditious and systematic removal of all animal and vegetable refuse from the town, and especially from the poorer and more populous districts. The more intimate knowledge of the Borough I have obtained during the past twelve months compels me again to point to the need of more energetic action in this direction. It would be useless for me to suggest at the present time the conversion of the pail-closet system of excreta removal to the far more sanitary water-closet system; but, so long as the present method of dealing with excreta exists, the least that should be done is to see that the pails are removed with such frequency as will ensure that no unnecessary nuisance is caused.

During the year the Chief Inspector and myself have devoted considerable attention to the COURTS and BACK PASSAGES, and it is in these poorer areas that the defects of the pail-closet system are chiefly to be seen. From one cause or another, whether from the pails being overfull or from their incorrect position or from some defective structure of the closet seat, liquid filth in the majority of instances is to be seen flowing from the pail place on to the adjacent part of the yard; and, to make the matter worse, the yard surface on to which the filth flows is nearly always either unpaved or imperfectly paved, and is also, except in one or two instances, undrained. Hence this ground, which adjoins the dwellings and which is often the playground of the children, becomes soaked with undiluted sewage. The dealing with this question, together with that of the satisfactory scavenging of these areas, is at present under consideration, and it is in this direction that our main efforts must be applied in order to reduce the death-rate from the preventable diseases, *i.e.*, the zymotic diseases, including infantile diarrhœa.

In this connection I must again refer to those large and badly constructed MIDDENSTEADS attached to stables, slaughter-houses and cowsheds, which are still existing. These structures must be replaced by properly constructed receptacles which should not accommodate more than a week's manure.

It will be seen by reference to page 56, that a considerable amount of insanitary property has been dealt with during the year under the HOUSING OF THE WORKING CLASSES ACTS.

It having been decided that the present time is not an opportune one for the building of a public abattoir, certain sanitary improvements are being obtained with respect to the PRIVATE SLAUGHTERHOUSES IN THE BOROUGH; but unfortunately many of these existing buildings, on account of their position and structure, are incapable of being transformed into premises which are suitable for the slaughtering of animals. So long as the sanitary supervision of slaughterhouses is not uniformly exercised throughout the country, it will be difficult to meet one of the chief arguments at present put forward against the building of a public abattoir in any town, namely, that as soon as a municipality begins to put special restrictions on the slaughtering of animals within its boundaries which are not imposed by neighbouring districts, butchers will do their slaughtering just beyond the municipal boundaries, and that in consequence the municipal abattoir, if erected, will be a financial failure.

BACTERIOLOGICAL WORK.—A considerable amount of useful work has been carried out at the bacteriological laboratory, which was fitted up at Aikin-street Hospital at the end of 1907 (see page 38).

It is becoming increasingly recognised that, in order to adequately control such infectious diseases as Diphtheria, Tuberculosis and Enteric Fever, systematic recourse must be had to the science of bacteriology. It is almost impossible, except in very pronounced cases, to decide whether or not any case of sore throat is one of Diphtheria without an investigation in the laboratory; and it is certainly quite impossible, without such a precaution, to say in connection with any case of Diphtheria when the infection has ceased, or in other words, when the bacilli have disappeared from the patient's throat. In like manner a bacteriological examination will very often help the medical practitioner to determine the nature of some obscure cases of Tuberculosis, Enteric Fever or other infectious disease. As regards Enteric Fever, it is now known that certain persons, who have suffered from an attack of the disease, continue to be infectious for long periods after apparent recovery and may, months or years after their original attack, start an epidemic of the disease by the contamination by them of some general article of food, such as milk. These cases can only be detected by a bacteriological investigation.

But in order that full benefit may be derived from this branch of public health work, the laboratory must be close at hand so that unnecessary delay is avoided in investigating any case; and as this work is greatly increasing in amount, it is also essential that the laboratory be a part of the Health Department, otherwise the expense involved in sending numerous specimens for examination at an independent institution would become a serious item and would tend to cripple work. Although the time a Medical Officer of Health can devote to bacteriological work is limited, the laboratory in the Borough has not only been of service during the past year in connection with work such as has just been described, but it has also supplied a means of investigating infectious disease in a scientific manner, and has offered an opportunity for the carrying out of investigations which are of general as well as of local interest.

UNCERTIFIED DEATHS.—The number of uncertified deaths among infants, *i.e.*, deaths of infants as regards which neither a doctor's certificate has been given nor an inquest held, is again excessive.

The proportion of uncertified deaths to total deaths which occurred in the Borough during the year was 4·4 per cent. while the proportion for England and Wales as a whole was 1·4 per cent. This fact has been commented upon by the "Lancet" on several occasions during the past twelve months, and the question was asked why the proportion was specially high in Warrington and a few other towns.

As far as I am aware the provision of medical aid for the poor in Warrington compares favourably with that made in other towns, and there should therefore be no difficulty in obtaining a doctor's attendance in any case of illness. There is moreover no reason for believing that recourse to such help is exceptionally delayed in this town. The only explanation therefore that I have to offer for the relatively large number of uncertified deaths in Warrington is that inquests are held less frequently in this Borough than in the country generally on cases where a doctor's certificate cannot be obtained. I must again point out that it is very desirable that an inquest be held in connection with deaths of young children when a doctor has not been called in during the fatal illness.

EXEMPTION FROM VACCINATION.—It is especially important that the effect of the amendment of the Vaccination Act, passed in the latter part of 1907, be brought before the public notice (see page 31). As the result of this modified legislation 93 children during the past 12 months have been refused by their parents the protection which is undoubtedly offered by vaccination against the dire risks of an attack of Smallpox.

THE MEDICAL INSPECTION OF SCHOOL CHILDREN AND SCHOOL HYGIENE.—This work forms the subject of a separate report to the Education Authority of the Borough.

RESIGNATIONS AND APPOINTMENTS of Health Department Staff during the year :—

Dr. Prudence Gaffikin resigned the office of Assistant Medical Officer of Health in the month of March, and Miss Lees that of Matron at the Isolation Hospital in the month of April.

Dr. Hutt was appointed to the post of Assistant Medical Officer of Health in the month of August and Miss Ashforth to that of Superintendent of Nurses at the Isolation Hospitals in the month of June.

Miss Spence was appointed School Nurse in the month of October.

In conclusion, I desire again to put on record my indebtedness to Mr. Flood, the Chief Inspector of Nuisances, for his valuable assistance during the past year.

I am, Gentlemen,

Your obedient servant,

J. COOTE HIBBERT.

SECTION I.

Vital Statistics.

SUMMARY.

Population (estimated to middle of 1908) ...	72,562
Population at Census, 1901	64,242
Population under 10 years of age at Census of 1901	16,889
Area of Borough (acres)	3,115
Density of population (*i.e.* number of persons per acre)	23·3
Number of houses in occupation (middle of year)	13,803
Number of houses not in occupation do. ...	434
Number of houses built during the year ...	241
Estimated average number of persons per house	5·5
Number of births (males, 1,213; females, 1,156)	2,369
Birth-rate per 1,000 living	32·6
Number of deaths (668 males, 571 females) ...	1239
Death-rate per 1,000 living (corrected) ...	17·07
Excess of registered Births over Deaths ...	1,130
Number of Marriages	644
Marriage-rate per 1,000 living	8·8
Death-rate from seven chief Zymotic diseases per 1,000 living	2·6
Phthisis Death-rate per 1,000 living... ...	1·25
Death-rate per 1,000 population from other forms of Tuberculosis	·68
Death-rate from all forms of Tuberculosis, including phthisis	1·9
Death-rate from diseases of respiratory organs other than Tuberculosis...	2·9
Infantile Mortality-rate (*i.e.* the number of deaths of children under one year per 1,000 births	132

Comparison of the Birth-rate, the General, Zymotic and Infantile Death-rates of Warrington, with those of England and Wales, for the year 1908.

	Annual rate per 1,000 living.											
	Birth-rate.	Death-rate.		Principal Epidemic Diseases Cols. 5-11.	Smallpox.	Measles.	Scarlet Fever	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Deaths under 1 year per 1,000 births.
		Crude.	Cor-rected.									
	1.	2	3.	4.	5	6.	7.	8.	9	10	11.	12.
England and Wales	26 5	14·7	14·7	1·29	0·00	0·22	0·08	0·15	0·27	0·07	0·50	121
76 Grt. Towns	**27·0**	**14·9**	**15·3**	**1·59**	**0·00**	**0·31**	**0·10**	**0·16**	**0·29**	**0·08**	**0.65**	**128**
142 smaller towns . .	26·0	14·0	14·7	1·26	—	0·20	0·06	0·15	0·25	0·08	0·52	124
England and Wales less the 218 towns	26·2	14·7	13·8	0·99	0·00	0·13	0·06	0·15	0·25	0·07	0·33	110
Warrington . .	**32·6**	**17·4**	**17·07**	**2·6**	**0·00**	**0·35**	**0·22**	**0·22**	**0·82**	**0·15**	**0·86**	**132**

POPULATION.—As in previous years, the population has been estimated by enumerating the number of occupied houses in the Borough at the middle of the year, and by allowing the same average number of persons per occupied house as were found at the Census of 1901. By this method the population at the middle of the year is estimated to have been 72,562.

The Registrar-General bases his calculation upon a somewhat lower figure, viz. :—that obtained by adding for each year since the census of 1901, a tenth of the total increase during the previous decennium. By so doing his rates work out higher, as the following will show :—

	Birth-rate per 1,000	Death-rate per 1,000
On Registrar-General's Population ...	33·2	17·38
On Population estimated by method described above	32·6	17·07

RETURN SHOWING THE NUMBER OF DWELLING-HOUSES AND LOCK-UP SHOPS OCCUPIED AND UNOCCUPIED ON JULY 15TH, 1908:

	Occupied.		Unoccupied.	
Ward.	Houses.	Lock-ups.	Houses.	Lock-ups.
Town Hall ...	980	159	26	11
Whitecross ...	1,761	20	57	1
Bewsey ...	970	11	46	—
Orford ...	1,710	13	46	1
St. John's ...	2,065	34	79	1
Fairfield ...	1,723	22	48	—
Howley ...	1,297	75	44	6
St. Austins ...	1,205	85	48	5
Latchford ...	2,092	31	40	8
	13,803	450	434	33

LIST SHOWING THE NUMBER OF NEW DWELLING-HOUSES PASSED FOR OCCUPATION IN EACH WARD OF THE TOWN FOR THE YEAR 1908:—

Whitecross	84
Fairfield	58
Orford	37
Latchford	19
St. Austin's	19
Bewsey	15
Howley	9
Total	241

MARRIAGES.—There were 644 marriages during the year, the marriage-rate per 1,000 population being 8·8. In 1907 there were 584 marriages, giving a marriage-rate of 8·1.

BIRTHS.—There were 2,369 births (1,213 males, 1,156 females), a number exceeding that for the previous year by 13. The figures give a birth-rate of 32·6 as against 32·7 for 1907. The average for the ten years, 1898 to 1907 was 34·9 per 1,000.

The birth-rate in England and Wales in 1908 was 26·5 per 1,000 of the population, which is 0·2 per 1,000 above the rate in 1907. Compared with the average for the 10 years 1898—1907 the birth-rate in England and Wales for 1908 showed a decrease of 1·6 per 1,000.

It is to be observed that the birth-rate in Warrington is, relatively, a high one.

DEATHS.—1,264 deaths were registered as occurring in the Borough during 1908. Of these 244 occurred in public institutions, as follows:—

In the Infirmary	63	244
In the Workhouse	154	
In the Fever Hospital	27	

Thirty-eight of these deaths were of persons belonging to other districts, viz.:—

In the Infirmary	13	38
In the Workhouse	21	
In the Fever Hospital	4	

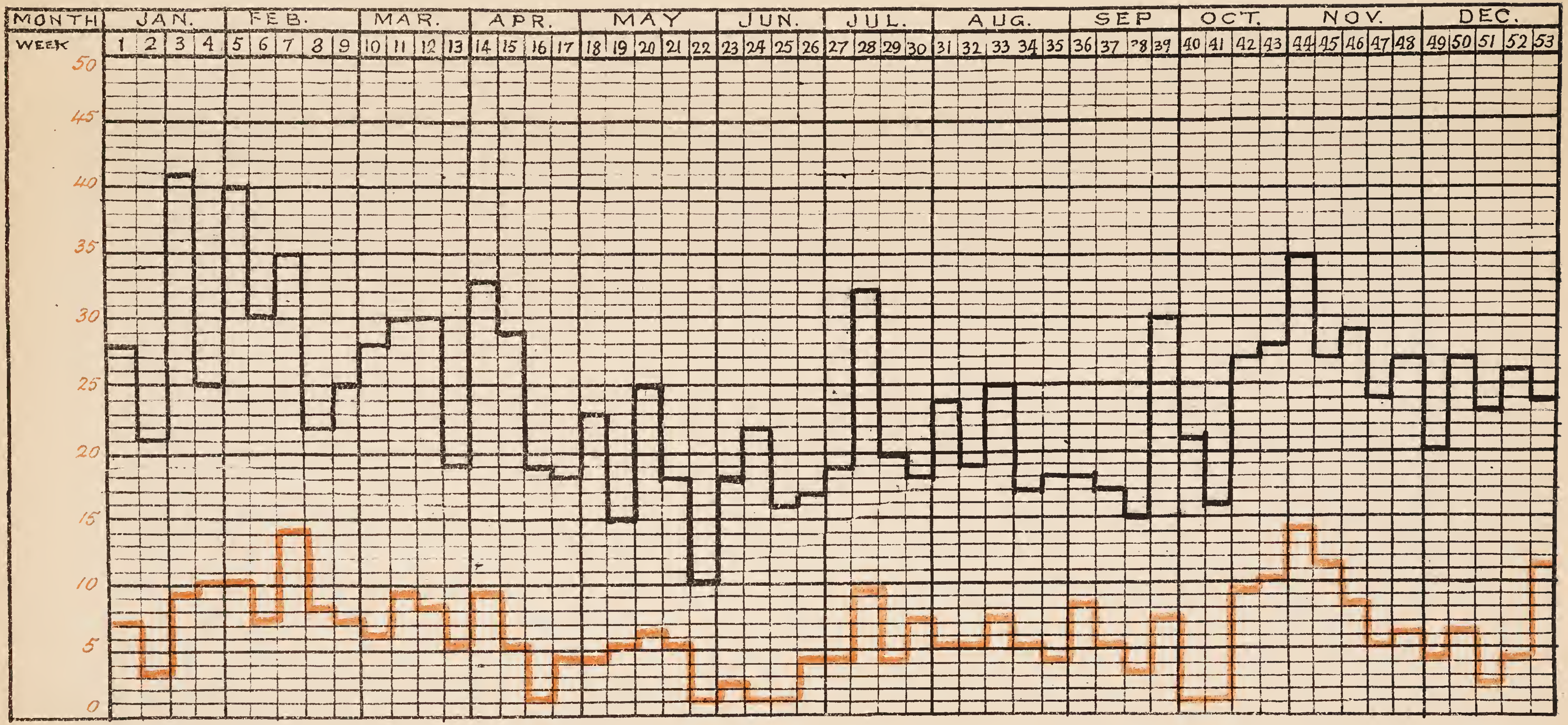
Information of these has been forwarded to the Medical Officers of Health of their respective localities.

Thirteen deaths occurring in the Workhouse, and accredited to Warrington, were those of vagrants belonging, so far as is known, to no particular locality.

Thirteen deaths have been reported to me as having occurred in public institutions outside the district but as belonging to Warrington. These deaths occurred in the following Institutions:—

	Number of Deaths.
Winwick Asylum	8
Cancer Hospital, Manchester	1
Wigan Workhouse	1
St. Augustine's Home, Liverpool	1
Mill Street Infirmary, Liverpool	1
Women's Hospital Hospital, Liverpool	1
Total ...	13

The crude death-rate for 1908 was therefore 17·4, but deducting 38 non-residents from, and adding 13 residents dying outside the Borough to, the registered number, viz., 1,264, we get 1239 the actual number to be credited to Warrington. The net death-rate on this calculation is 17·07. The death-rate for England and Wales, as given by the Registrar-General, is 14·7.



▬ *Number of Deaths registered each week at all ages*

▬ *" " " " " children under 1 year.*

AGES OF MORTALITY.

The following table shows the numbers of deaths (distinguishing males and females) at different age periods :—

	Males.	Females.	Total.
0—3 months	88	60	148
3–6 ,,	41	24	65
6—12 ,,	57	45	102
Totals under 1 year	186	129	315
Over 1 and under 2	57	50	107
,, 2 ,, 3	32	19	51
,. 3 ,, 4	8	15	23
4 ,, 5	12	12	24
	109	96	205
Over 5 and under 10	18	23	41
,, 10 ,, 15	11	22	33
,, 15 ,, 25	30	19	49
,. 25 ,, 35	39	39	78
,, 35 ,, 45	48	40	88
., 45 ., 55	66	44	110
,, 55 ,, 65	63	51	114
,, 65 ,, 75	66	73	139
,. 75 ,, 85	27	27	54
Over 85	5	8	13
Totals at ages over 5	373	346	719

(1) THE ZYMOTIC DEATH-RATE, or death-rate from seven chief epidemic diseases, that is to say, Smallpox, Measles. Scarlet Fever, Whooping Cough, Diphtheria and Membranous Croup, Enteric Fever, and Diarrhœa has long been regarded as a test of the state of the public health. The above list includes most, though by no means all, the common diseases which are spread by infection from person to person, and which should be to a large extent preventable.

The annual zymotic death-rate since 1896 has been as follows:—

1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
3·0	2·8	3·2	5·01	2·5	3·8	1·53	3·5	4·6	2·7	3·1	2.1	2·6

Year 1908.

UNCERTIFIED DEATHS WITH REGARD TO WHICH NO INQUEST WAS HELD.

Cause of Death as given by the Registrar.	All ages.	Under 1 year	1 to 5	5 to 15	15 to 25	25 to 65	65 and upwards
Premature Birth	8	8	...	...	...	...	...
Convulsions	15	14	1	...	...	...	...
Heat Stroke	1	...	...	1	...	...	...
Heart Disease	2	...	...	...	...	...	2
Diarrhœa	2	1	1	...	...	...	...
Heart Failure	7	...	...	...	...	6	1
Mitral Regurgitation ...	1	...	...	...	1	...	...
Bronchitis	2	..	1	...	...	...	1
Rupture of Blood Vessel ...	1	...	...	...	...	1	...
Spasm of Glottis	1	1	...	...	...	...	...
Phthisis	1	...	...	...	...	1	...
Pneumonia	1	...	1	...	...	...	...
Apopletic Seizure	1	...	...	...	...	1	...
Cerebral Hæmorrhage ...	1	...	...	...	...	...	1
Syncope	1	...	...	...	...	...	1
Debility	1	...	...	...	...	...	1
Apoplexy	1	...	...	...	...	1	...
Natural Causes	8	3	1	.	...	4	...
Totals	55	27	5	1	1	14	7

LIST OF CASES IN WHICH AN INQUEST WAS HELD.

ACCIDENTS	by drowning	6
	falls	13
	burns	9
	being knocked down by cyclist	2
	,, ,, ,, ,, horse and lurry	1
	Total	31

Deaths from “Natural Causes”	5
,, Suffocation	1
,, Malignant tumour of kidney	1
,, Pulmonary tuberculosis	2
,, Blood poisoning	1
,, Chronic catarrh of stomach	1
,, Diabetic Gangrene	1
Total	12

SUICIDES by cutting throat with razor	2
drinking carbolic acid	2
hanging	4
drowning	1
Total	9

Total 52

TABLE TO SHOW THE VITAL RATES FOR THE DIFFERENT WARDS OF THE TOWN.

WARD.	Estimat'd Population Middle of 1908.	Persons per house at Census 1901.	Birth Rate per 1,000 living.	Death Rate per 1,000 living.	Infantile Death Rate per 1,000 births.	Death Rate from the Seven Chief Epide'ic Diseases	Phthisis Death Rate per 1,000 living.
TOWN HALL	4,900	5·0	25·5	18·9	152	3·2	1·4
WHITECROSS	9,685	5·5	39·4	15·6	125	3·4	·8
BEWSEY	5,238	5·4	36·2	21·3	152	4·0	1·3
ORFORD	10,089	5·9	34·7	15·5	113	2·3	1·4
ST. JOHN'S	10,738	5·2	35·1	20·1	180	3·2	1·5
FAIRFIELD	8,442	4·9	31·1	13·9	102	2·3	·8
HOWLEY	6,744	5·2	33·5	22·3	137	1·7	1·9
ST. AUSTIN'S	6,266	5·2	19·9	14·5	184	1·7	1·1
LATCHFORD	10,460	5·0	31·5	12·7	90	1·9	·7
WHOLE BOROUGH	72,562	5·2	32 6	17·0	132	2·6	1·2

The DEATH-RATE from the DISEASES OF THE RESPIRATORY ORGANS other than those of tuberculous origin was 2·9 per 1,000 population. The figures for preceding years are given below:—

1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.
3·6	4·0	3·6	3·2	2·6	3·0	3·2	2·4	3·0	2·3	3·1	2·9

DEATHS FROM TUBERCULOSIS.—(1) There were 91 deaths from Tuberculosis of the Lungs, giving a death-rate of 1·2.

(2) The deaths from other forms of Tuberculosis numbered 50, giving a death-rate of ·68.

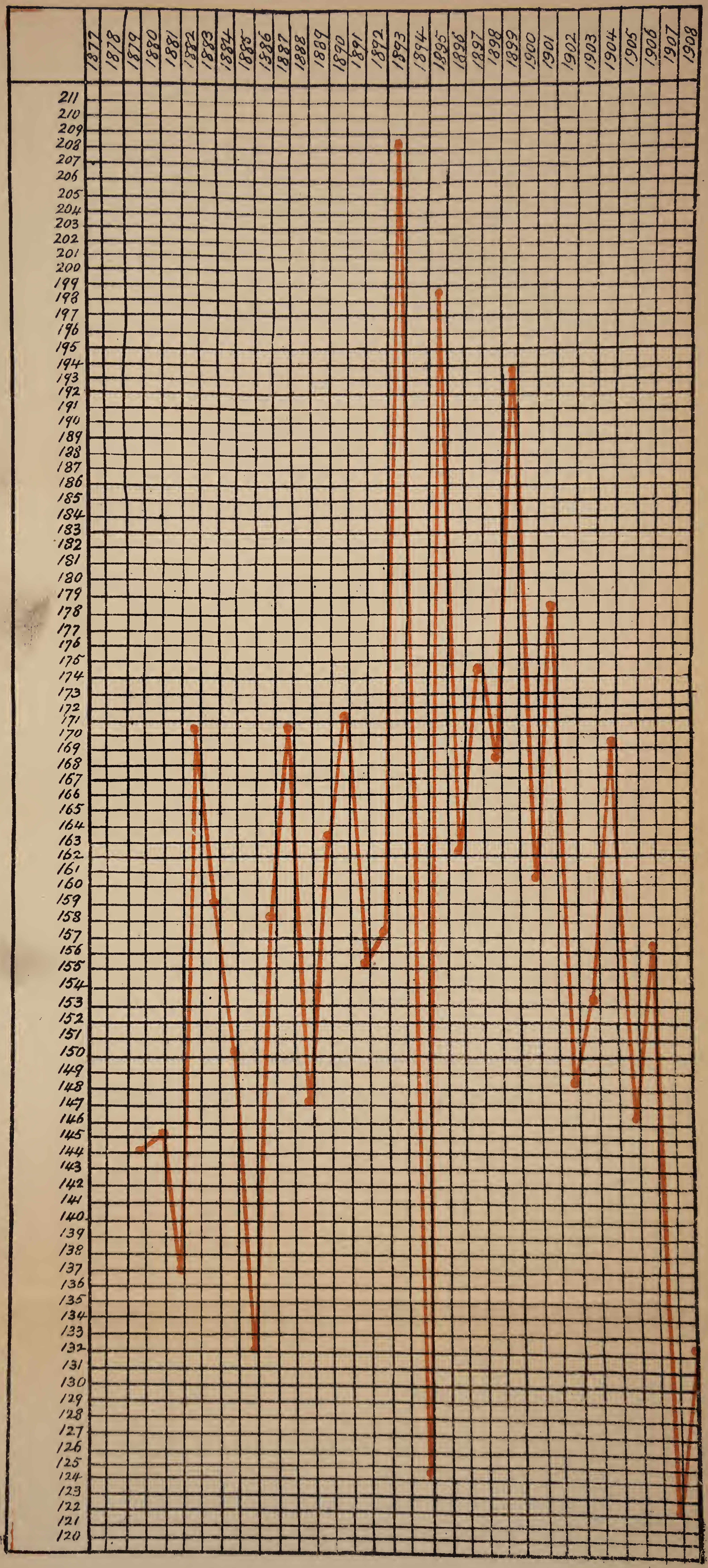
These death-rates from tuberculosis are about the same as those of 1907.

The following table shows the number of cases notified and the deaths from Tubercular Phthisis since voluntary notification was first instituted in Warrington in 1901 :—

	Notifications.	Deaths.	Deaths per 1,000 of the Population.
1901 (Oct. to Dec.)	40	90	1·396
1902	73	79	1·199
1903	52	84	1·250
1904	75	80	1·168
1905	77	95	1·373
1906	80	111	1·577
1907	115	93	1·294
1908	88	91	1·25

INFANTILE MORTALITY.—The number of deaths of infants under one year per 1,000 births was 134 during 1908, as compared with 122 for the preceding year. The higher figure for the year under report is entirely accounted for by the increased number of deaths from Whooping Cough. Except during the month of August, the Summer of 1908 was by no means a hot or dry one, and the meteorological conditions which prevailed during the Summer and early Autumn were not very dissimilar from those which during 1907 had contributed to the comparatively low infantile death-rate for that year. An Infantile Mortality Rate which is over 100 must, however, even for a town such as Warrington, be considered excessive, and the figure for 1908 will be exceeded during future years with hot Summers, unless the paving and scavenging of the poorer districts are more rigorously attended to.

Infantile Mortality in Warrington since 1879.



As the time of the Lady Inspector is chiefly taken up in supervising the work of the Midwives, no systematic visiting of new-born children can be attempted. Further action in this direction, such as the appointment of a second Lady Health Visitor, and the adoption of the Notification of Births Act, is undoubtedly desirable.

DEATHS FROM CANCER.

1908.

Males.		Females.	
Cancer--Stomach	5	Cancer—Uterus	6
Liver	1	Breast	5
Rectum	1	Colon	1
Mouth	2	Peritoneum	1
Tongue	3	Stomach	4
Bladder	1	Rectum	1
Kidney	1	Liver	3
Sarcoma—Jaw	2	Brain	1
Rectum	1	Sarcoma—Liver	1
Intra Abdominal	1		
Rodent Ulcer	1		
	19		23

Tota 42.

STATISTICAL TABLES

OF

BIRTHS, DEATHS, AND DISEASES,

FOR THE

COUNTY BOROUGH OF WARRINGTON

(AS SUPPLIED TO THE LOCAL GOVERNMENT BOARD).

TABLE I.

FOR WHOLE DISTRICT.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.		Total Deaths Registered in the District.				Total Deaths in Public Institutions in the District.	Deaths of Non-residents registered in Public Institutions in the District.	Deaths of Residents registered in Public Institutions beyond the District.	Nett Deaths at all Ages belonging to the District.	
				Under One Year of age.		At all Ages.						
		No.	Rate.*	No.	Rate per 1000 Births regst.	No.	Rate.*				No.	Rate*
1	2	3	4	5	6	7	8	9	10	11	12	13
1898	61,465	2.358	38·3	399	169	1,156	18·8	137	35	1	1,122	18·2
1899	62.761	2,309	36·7	449	194	1,313	21·1	145	30	3	1,286	20·4
1900	63,560	2,388	37·5	389	162	1,289	20·3	178	42	15	1,265	19·8
1901	64,465	2,276	35·2	404	177	1,273	19·7	147	36	6	1,243	19·2
1902	65.842	2,376	36·1	350	149	1.108	16·8	154	21	8	1,095	16·6
1903	67,153	2.395	35·6	369	154	1.261	18·7	168	33	10	1.238	18·4
1904	68 490	2,246	32·7	384	171	1.361	19·8	174	39	12	1,335	19·4
1905	69,153	2.281	32·9	336	147	1,192	17·3	167	36	13	1,169	16·9
1906	70.364	2,248	31·9	353	157	1,303	18·5	202	40	10	1,273	18·0
1907	71,849	2,356	32·7	288	122	1,167	16·2	224	48	11	1,130	15·7
Averages for 1years 898·07.	66,510	2,323	34·9	372	160	1,242	18·7	173	36	9	1,215	18·2
1908	**72,562**	**2,369**	**32·6**	**318**	**134**	**1,264**	**17·4**	**244**	**38**	**13**	**1,239**	**17·0**

* Rates in Columns 4, 8, and 13 calculated per 1,000 of estimated population.

NOTE.—The deaths to be included in Column 7 of this table are the whole of those registered during the year as having actually occurred within the district or division. The deaths to be included in Column 12 are the number in Column 7, corrected by the subtraction of the number in Column 10 and the addition of the number in Column 11.

By the term "Non-residents" is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term "Residents" is meant persons who have been taken out of the district on account of sickness or infirmity, and have died in public institutions elsewhere.

The "Public Institutions" to be taken into account for the purposes of these Tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses and lunatic asylums. A list of the Institutions in respect of the deaths in which corrections have been made is given on p. 16.

Area of District in acres (exclusive of area covered by water), 3,115.

Total population at all ages..................	64,242	At Census of 1901.
Number of inhabited houses	12,272	
Average number of persons per house......	5·2	

TABLE II.

Vital Statistics of separate Localities in 1908 and previous years.

Name of District—COUNTY BOROUGH OF WARRINGTON.

NAMES OF LOCALITIES.	1.—WHOLE BOROUGH.				2.—TOWN HALL WARD.				3.—WHITECROSS WARD.				4.—BEWSEY WARD.				5.—ORFORD WARD.			
YEAR.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
	a.	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*
1898 ...	61465	2358	1122	399	5606		90		7074		98		5153		90		7092		143	
1899 ...	62761	2309	1286	449	5524		103		7220		126		5101		118		7344		165	
1900 ...	63560	2388	1265	389	5448		100		7336		142		5049		113		7596		116	
1901 ...	64465	2276	1243	404	5368		107	25	7516		101	27	4995		94	29	7849		152	45
1902 ...	65842	2376	1095	350	5360	128	83	22	7700	328	118	29	4010	170	89	29	7915	290	131	48
1903 ...	67153	2395	1238	369	5155	139	112	18	8503	342	122	43	5011	187	110	36	8030	251	138	42
1904 ...	68490	2246	1335	384	5075	138	93	15	8827	341	147	43	5157	164	107	37	8777	292	153	48
1905 ...	69153	2281	1169	336	5010	142	84	19	9097	386	114	47	5254	139	113	30	9150	287	125	38
1906 ...	70364	2248	1273	353	4995	126	87	17	9176	345	118	38	5275	165	124	28	9209	323	170	52
1907 ...	71849	2356	1130	288	4925	120	97	14	9526	361	116	24	5421	185	85	22	9717	393	148	51
Averages of Years 1898 to 1907.	66510	2323	1215	372	5246		95		8197		120		5042		104		8268		144	
1908 ...	72562	2369	1239*	315	4900	125	93	19	9685	382	152	48	5238	190	112	29	10089	351	157	40

NAMES OF LOCALITIES.	6.—ST. JOHN'S WARD.				7.—FAIRFIELD WARD.				8.—HOWLEY WARD.				9.—ST. AUSTIN'S WARD.				10.—LATCHFORD WARD.			
YEAR.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
	a	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*
1898 ...	9874		217		6713		102		6591		171		6106		85		7569		126	
1899 ...	10027		267		6959		115		6612		144		6180		115		7727		133	
1900 ...	10180		221		7201		110		6633		172		6254		93		7885		145	
1901 ...	10366		301	121	7447		120	50	6652		149	44	6324		85	24	8040		126	46
1902 ...	10633	474	215	86	7708	272	118	42	6729	254	145	44	6372	150	78	24	8310	280	92	20
1903 ...	10910	527	259	88	7864	275	137	44	6838	254	119	45	6427	143	96	20	8753	277	123	33
1904 ...	10857	425	252	102	7844	228	128	34	6749	227	183	49	6390	148	84	18	9065	283	164	38
1905 ...	10826	428	272	91	8001	243	117	39	6666	221	120	30	6208	146	86	13	9375	289	117	29
1906 ...	10920	378	229	81	8154	270	121	34	6702	217	139	41	6156	123	102	14	9777	301	157	48
1907 ...	10914	356	211	58	8266	270	136	39	6708	247	110	32	6052	140	96	19	10320	284	112	24
Averages of Years 1898 to 1907.	10550		244		7615		120		6688		145		6247		92		8682		129	
1908 ...	10738	377	216	68	8442	263	118	27	6744	226	151	31	6266	125	91	23	10460	330	133	30

NOTES.—(*a*) The separate localities adopted for this table should be areas of which the populations are obtainable from the census returns, such as wards, parishes or groups of parishes, or registration sub-districts. Block 1 may, if desired, be used for the whole district; and blocks 2, 3, &c.. for the several localities. In small districts without recognised divisions of known population this Table need not be filled up.

(*b*) Deaths of residents occurring in public institutions beyond the district are to be included in sub-columns *c* of this table, and those of non-residents registered in public institutions in the district excluded. (See note on Table 1. as to meaning of terms "resident" and "non-resident.")

(*c*) Deaths of residents occurring in public institutions, whether within or without the district, are to be allotted to the respective localities according to the addresses of the deceased.

(*d*) Care should be taken that the gross totals of the several columns in this Table respectively equal the corresponding totals for the whole districts in Tables I. and IV.; thus, the totals of sub-columns *a*, *b*, and *c* should agree with the figures for the year in the columns 2, 3 and 12, respectively, of Table I.: the gross total of the sub-columns *c* should agree with the total of column 2 in Table IV., and the gross total of sub-columns *d* with the total of column 3 in Table IV.

* Of these 16 could not be distributed.

COUNTY BOROUGH OF WARRINGTON.

TABLE III.—Cases of Infectious Disease notified during the Year 1908.

NOTIFIABLE DISEASE.	Cases notified in Whole District.							Total Cases notified in each Locality.									**No. of Cases removed to Hospital from each Locality.									
	At all Ages	At Ages †—Years. Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.	Town Hall Ward.	Whitecross Ward. (H) (W)	Bewsey Ward.	Orford Ward.	St. John's Ward.	Fairfield Ward.	Howley Ward.	St. Austin's Ward.	Latchford Ward.	Town Hall Ward.	Whitecross Ward. (H) (W)	Bewsey Ward.	Orford Ward.	St. John's Ward.	Fairfield Ward.	Howley Ward.	St. Austin's Ward.	Latchford Ward	Total cases removed to Hospital.
Smallpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria (including Membranous Croup)	123	2	41	74	4	2	..	12	11	5	7	12	10	2	17	47	8	6	2	4	7	8	2	10	31	78
Erysipelas	42	4	4	1	1	28	4	5	9	6	4	3	1	4	4	6	..	..	..	..	..	..	..	..	..	..
Scarlet Fever	321	4	101	194	19	3	..	17	63	45	51	26	27	24	36	32	9	47	27	41	18	19	19	29	23	232
Typhus Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Fever	33	..	..	7	7	18	1	3	2	2	9	3	5	2	2	5	3	1	..	6	2	2	2	2	3	21
Relapsing Fever	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Continued Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Puerperal Fever	12	..	..	..	3	9	..	..	1	1	1	..	1	3	1	4	..	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Phthisis	88	..	4	13	19	52	..	4	22	8	12	17	5	10	4	6	..	2	2	1	..	1	2	..	..	8
Totals	620	10	150	289	53	113	5	41	108	67	84	61	49	45	64	101	20	56	31	52	27	30	25	41	57	339

NOTES.—The localities adopted for this Table should be the same as those in Tables II. and IV.

State in space below the name of the Isolation Hospital, if any, to which residents in the district, suffering from infectious disease, are usually sent. Mark (H) the locality in which it is situated, or if not within the district, state where it is situated, and in what district. The name of the authority by whom the hospital is provided should also be given. Mark (W) the locality in which a workhouse is situated.

† These age columns for notifications should be filled up in all cases where the Medical Officer of Health, by inquiry or otherwise, has obtained the necessary information.

** Column 8 should be filled up with the Totals of cases removed to Hospital, whether the District is divided into separate localities or consists of only one undivided area.

Isolation Hospital, Warrington Borough Hospital, Aikin Street (Whitecross Ward).

Small-pox Hospital at Sankey (outside the Borough).

TABLE IV.—COUNTY BOROUGH OF WARRINGTON.

CAUSES OF, AND AGES AT, DEATH DURING YEAR 1908.

Causes of Death.	Deaths in or belonging to whole District at Subjoined Ages.							Deaths in or belonging to Localities (at all Ages).										Total Deaths in Public Institutions
	All Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Town Hall Ward.	Whitecross Ward.	Bewsey Ward.	Orford Ward.	St. John's Ward.	Fairfield Ward.	Howley Ward.	St. Austin's Ward.	Latchford Ward.	Undistribut'd Deaths.	
Smallpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles	26	3	23	..	..	..	..	1	10	..	3	3	3	..	4	2	..	4
Scarlet Fever	16	..	8	7	1	..	..	1	1	3	3	1	2	..	3	2	..	13
Whooping Cough	60	30	28	2	..	..	..	8	12	7	7	11	5	6	1	3	..	2
Diphtheria & Membranous Croup	16	2	11	2	1	..	..	2	1	1	1	3	3	..	..	5	..	9
Croup	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
FEVER—																		
Typhus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric	11	..	..	2	2	6	1	..	1	1	3	1	2	1	..	2	..	5
Other continued	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Epidemic Influenza	27	1	..	5	2	14	5	3	3	3	6	5	1	1	1	4	..	2
Cholera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diarrhœa	63	49	13	1	..	..	..	4	8	9	7	16	5	5	3	6	..	..
Enteritis	12	..	9	..	..	2	1	1	1	1	3	3	1	2	..	..	..	..
Puerperal Fever	3	..	..	..	1	2	..	..	1	..	..	..	1	1	..	..	..	1
Erysipelas	4	2	1	..	..	1	..	1	..	1	..	..	..	..	1	1	..	..
Other Septic Diseases	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Phthisis (Pulmonary Tuberculosis)	91	..	3	9	15	63	1	7	8	7	15	17	7	13	7	8	..	30
Other Tuberculous Diseases	50	16	18	13	1	2	..	..	8	1	10	12	4	6	3	6	..	7
Cancer, Malignant Disease	42	..	..	1	1	32	8	5	5	4	5	8	4	3	4	3	..	14
Bronchitis	101	25	14	2	1	27	32	2	16	10	12	20	5	14	7	13	..	7
Pneumonia	108	18	31	4	3	44	8	6	8	10	18	19	10	16	5	12	..	17
Pleurisy	2	..	..	..	..	2	..	1	..	..	..	..	..	..	1	..	..	..
Other Diseases of Respiratory Organs	3	..	1	1	..	1	..	..	..	..	1	..	1	1	..	..	..	2
Alcoholism Cirrhosis of Liver	9	..	..	..	..	9	..		1	..	..	2	1	..	2	2	..	2
Venereal Diseases	1	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Premature Birth	49	49	..	..	..	..	..	3	8	6	5	8	7	4	3	5	..	1
Diseases and Accidents of Parturition	1	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..
Heart Diseases	99	1	2	5	2	55	34	13	10	8	12	11	15	14	5	11	..	14
Accidents	25	..	2	4	2	12	5	1	5	3	2	7	..	2	2	3	..	19
Suicides	9	..	..	..	1	6	2	1	..	..	1	..	..	1	..	6	..	..
All other causes	411	118	41	16	16	111	109	32	45	37	42	69	41	60	39	39	..	95
All causes	1239	315	205	74	49	390	206	93	152	112	157	216	118	151	91	133	..	244

TABLE V.—COUNTY BOROUGH OF WARRINGTON.

INFANTILE MORTALITY DURING THE YEAR 1908.

Deaths from stated Causes in Weeks and Months under One Year of Age.

CAUSE OF DEATH.	Under 1 Week.	1–2 Weeks.	2–3 Weeks.	3–4 Weeks.	Total under 1 Month.	1–2 Months.	2–3 Months.	3–4 Months.	4–5 Months.	5–6 Months.	6–7 Months.	7–8 Months.	8–9 Months.	9–10 Months.	10–11 Months.	11–12 Months.	Total Deaths under 1 Year.
All Causes:																	
Certified	48	10	13	10	81	27	22	29	18	14	23	16	15	12	16	14	288
Uncertified	10	1	1	..	12	2	3	..	4	..	2	..	2	1	1	..	27
Common Infectious Diseases:																	
Smallpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chickenpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..
Measles	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	1	3
Scarlet Fever..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria (including Membraneous Croup)	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	2
Whooping Cough	..	..	.	..	..	1	1	1	5	3	2	1	5	3	5	3	30
Diarrhœal Diseases:																	
Diarrhœa (all forms) ..	..	..	..	..	..	..	3	5	..	3	3	1	1	..	1	2	19
Enteritis, Muco-enteritis, Gastro-enteritis	..	..	..	1	1	..	2	1	4	1	1	..	2	2	..	..	14
Gastritis Gastro-intestinal Catarrh	..	..	..	..	..	1	1	6	1	..	3	2	..	1	1	..	16
Wasting Diseases:																	
Premature Birth	36	4	4	2	46	3	..	..	..	..	..	..	..	..	..	..	49
Congenital Defects ..	3	..	1	..	4	1	..	..	..	..	1	..	..	..	..	..	6
Injury at Birth	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Want of Breast Milk ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Atrophy, Debility, Marasmus	3	3	3	4	13	7	5	4	..	1	2	2	3	..	..	1	38
Tuberculous Diseases:																	
Tuberculous Meningitis	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	2
Tuberculous Peritonitis: Tabes Mesenterica ..	..	..	..	..	..	1	2	1	..	1	1	..	..	1	..	..	7
Other Tuberculous Diseases	..	..	..	..	..	1	..	3	..	1	..	..	..	2	..	..	7
Erysipelas	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	2
Syphilis	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1
Rickets	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Meningitis (not Tuberculous)	..	..	1	..	1	1	3	2	2	..	2	2	..	..	..	..	13
Convulsions	3	1	2	..	6	3	..	1	1	..	..	..	..	..	..	1	12
Bronchitis	..	1	..	2	3	3	3	4	4	..	2	1	..	1	3	1	25
Laryngitis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pneumonia..	..	..	..	..	..	2	..	1	2	1	2	3	1	1	2	3	18
Suffocation, overlying ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Causes	13	1	3	1	18	4	5	..	3	2	5	2	4	2	5	1	51
	58	11	14	10	93	29	25	29	22	14	25	16	17	13	18	14	315

District of Warrington.

Population, estimated to middle of 1908, 72,562.

Births in the year	Legitimate	2,299
	Illegitimate.. ..	70
Deaths from all Causes at all ages	..	1,239
Deaths in the year	Legitimate Infants	304
	Illegitimate Infants	11

MEMORANDA AS TO CIRCUMSTANCES LIKELY TO INFLUENCE THE PUBLIC HEALTH OF WARRINGTON.

Situation.—On the northern and southern banks of River Mersey, about midway between Manchester and Liverpool: the southern municipal boundary, the Ship Canal, also constitutes the dividing line between Lancashire and Cheshire at this point. Also on the main road between the Midlands and parts of Lancashire (including coal and iron districts). It is consequently continually passed through by tramps and persons in search of employment. It is generally low lying and in a depression formed by valley of Mersey, most of town being to the north of that river. The parts of it nearest to the river, and almost the whole of the Latchford Ward on the south are on alluvial land (part of the old river bed). The site of the rest of the town, which rises towards the centre, is on a formation of the upper levels of the New Red Sandstone, covered to varying depths with a glacial deposit of boulder clay, and in two spots, one in Sankey Street and the other in Bewsey Street, there also exist gravel beds.

Streets and Buildings.—In the older and central portion, comprising chiefly Town Hall, Howley, and St. John's Wards (*vide* Ward Rates), are narrow streets and back courts and alleys containing insanitary dwellings, now gradually disappearing partly through street widening, partly through the work of the Health Committee. Shops and offices are largely supplanting residences in the middle of the town. Around this is an area of streets of small houses called into existence by the industrial development of last 50 years: 40 per cent. of the houses in the borough contain four rooms or less. Much of the property of twenty years ago or more has passed into a very bad state through the absence of damp-course, &c.

The paving of new streets is often delayed for a long time, while in back passages in this respect, the condition of things is even worse, but it is now to be hoped that a decisive improvement will be made. The matter is of great importance for the future healthfulness of the borough.

Suburbs can hardly be said to exist within the confines of the Borough, though in two directions, at any rate, east and south of the centre, the town acquires a more suburban character. Contiguous to these parts, but outside the borough, are two populous and growing districts, Stockton Heath and Padgate, the one in the Runcorn Rural District, the other in the Warrington Rural District. Under the latter Sanitary Authority is also an increasing population just outside the western boundary at Sankey Bridges. A great number of the inhabitants of these districts have their employment within the borough, and many of the children come to school inside the town.

Communication by railway is particularly good, rendering easy access to neighbouring towns, and, indeed, to all parts of the country. Electric tramways have now been running seven years, and there are already signs that they will lead to new suburban districts, though it remains to be seen how they will help us in the housing difficulty by reducing the overcrowding in the worst parts of the town.

Age and Sex Distribution of Population.—At the census there were shewn to be 32,323 males, and 31,919 females, the excess of males being mainly owing to industrial conditions. 16,889 persons were under ten years of age (viz., 8,458 males and 8,431 females), *i.e.* 26 per cent. of the population, a proportion that is not likely to go down if our high birth-rate continues.

Occupations.—An almost entirely industrial community: the staple trades being the manufacture of iron in many various branches, and tanning, but a remarkable number of other businesses exist, *e.g.*, soap-making, fustian-cutting, glass-making, and file-cutting; there is only one cotton mill. The result of this variety of trades is an almost continuous prosperity; places where there is only one main means of livelihood are much more liable to periods of distress.

Disposal of Refuse and Drainage.—According to the latest return there are now

(1) Water Closets, 750, approximately.

(2) Pails Closets, 14,750.

(3) Privy Closets, 6 (4 only cleansed by Corporation).

I am indebted to the courtesy of Mr. T. Longdin, the Borough Surveyor, for the following account of the drainage of Warrington:

"In the year 1849 the then Robert Rawlinson (who afterwards received the title of Sir R. Rawlinson, C.B., and became Chief Engineering Inspector of the Local Government Board) was engaged by the Corporation of Warrington to report upon a scheme of drainage for the town.

"This report was adopted, and with certain modifications was carried out. It dealt with a town area of 1,744 acres and a then suburban area of 171 acres; the present acreage of Warrington is 3,115. The major portion is built upon, and has, according to the last census, a population of 64,242, and the whole of the population is provided with sewerage arrangements. There are very few water closets in the town, the excreta being dealt with on a dry conservancy system known as the pail system, but the sewers receive a large volume of water from the large manufacturing industries of the town. The main outfall sewers are of egg-shaped brick sewers varying from 4ft. by 3ft. and 3ft. 6in. by 2ft. 6in. to 3ft. by 2ft.; the secondary sewers are of circular stoneware pipes varying in size from 30in. to 9in. The whole is on the gravitating system excepting the Latchford portion and Padgate section of the town, from which the sewage gravitates to Shone's Pneumatic Ejectors, and is lifted by them to the main outfall sewers. This has enabled the sewers in the two districts to be laid with gradients ensuring good velocities in the flow of the sewage. All the sewers gravitate to and empty into the tidal portion of the River Mersey and into Sankey Brook, its tributary. [The latter is already highly polluted with organic and chemical matter when it reaches the Borough Boundary, and it cannot be said that the contribution of Warrington to the contamination of this stream is other than trifling, compared with the vast volume of sewage poured into it before it gets to the town.—Note by Medical Officer.] There are six outlets into the River discharging in various parts of the town. The sewers are provided with storm overflows discharging also into the tidal portion of the River. Particular attention is paid to the flushing of the sewers to prevent any deposit that might occur in certain low-lying districts of the town."

Household Refuse is collected weekly from the bins with which each house is provided, and is for the most part destroyed by burning, a great deal more being dealt with in this way since the new Electric Works were started. Street refuse not suitable for fuel is tipped on waste ground. There is however a great deal more tipping of noxious material going on than ought to be allowed.

The Scavenging of the Streets, Passages and Common Courts and Yards is greatly hindered by want of proper paving; there is, however, fair improvement to be recorded, in the paving of Streets and Passages.

Water Supply.—

(1) For domestic purposes from deep wells in the red sandstone at Winwick and Delph.

(2) For trade purposes, from a reservoir at Appleton, on the south side of the town, fed by brooks bringing water from farm lands.

(3) A few shallow wells, only one of which supplies water for domestic purposes.

The Public Institutions for the reception of cases of illness are three in number.

(1) The Warrington Infirmary, containing since the recent extension accommodation for about 100 patients, is in the main a surgical hospital, especially for accidents. It has a large out-patient department, and besides, its medical officers attend at their homes the great majority of the sick persons in the town who are not able to afford to pay a private attendant, and are not in clubs.

(2) The Workhouse Hospital, containing 194 beds, is of recent construction, and designed on modern lines.

(3) The Borough Isolation Hospital, in Aikin Street, provides the requisite accommodation for 88 patients. Medical practitioners are allowed to attend their own patients. No charge has been made to patients for many years. The diseases which are treated here are Scarlet Fever, Enteric Fever, and Diphtheria. Provision for cases of Smallpox has been made by the construction of a Sanatorium of 24 beds at Sankey, three miles to the west of Warrington. The Aikin Street Hospital is, according to certain contracts, available for the reception of patients from the Newton Urban District and the Warrington Rural District, when the circumstances of the town permit; it is also a Hospital for the Port Sanitary Authority of Manchester, on which Warrington is represented, and in such capacity takes in patients landed from the Ship Canal within the limits of the Borough.

As auxiliary to the above ought to be mentioned the Warrington District Nursing Association, which has six nurses who carry on an invaluable work among the sick poor

Schools.—With regard to the Public Elementary Schools, excepting in a few of more modern construction, it cannot be held that the sanitary conditions are good.

A second Council School has now been opened. The Secondary School conducted in the buildings of the Technical Institute has been so successful that additional accommodation has had to be provided

The only provision for higher education is that afforded at the ancient Boteler Grammar School.

There are also a few private schools carried on in ordinary dwelling-houses.

SECTION II.

INFECTIOUS DISEASES.

The year 1908 was not marked by any special outbreak of infectious disease; but, compared with the preceding year, most of these diseases were somewhat more prevalent. Whooping Cough was especially prominent during the year and caused more deaths than the total due to all the notifiable diseases.

Scarlet Fever continued to show the increased prevalence noticeable during the preceding year.

An increase in the number of cases of Diphtheria is again to be recorded.

A small outbreak of Enteric Fever occurred in the early part of the year (*see* special report, page 70).

The following are the numbers of cases notified and deaths recorded from the various notifiable infectious diseases, including Phthisis, the reporting of which latter disease is voluntary.

Disease	Cases notified in 1908.	Deaths registered in 1908.
Smallpox	—	—
Scarlet Fever	321	16
Diphtheria and Membranous Croup	123	16
Enteric or Typhoid Fever	33	11
Continued Fever	—	—
Relapsing Fever	1	—
Typhus Fever	—	—
Puerperal Fever	12	3
Cholera	—	—
Erysipelas	42	4
Plague	—	—
Phthisis	88	91
	620	141

Measures of disinfection have been carried out not only in all cases of notifiable diseases, but also in several instances of Measles. The premises, bedding, &c., are also disinfected after deaths from Phthisis and Puerperal Fever.

VACCINATION RETURNS FOR THE COUNTY BOROUGH OF WARRINGTON.

	1900	1901	1902	1903	1904	1905	1906	1907	Half-year ending June 30, 1908.
Births	2413	2283	2329	2395	2268	2280	2260	2373	1154
Successfully vaccinated ..	1977	1946	2016	2092	2007	2040	2003	2117	989
Insusceptible of vaccination ..	10	9	19	26	10	15	13	5	9
Died unvaccinated	390	288	262	241	221	212	214	201	94
Exemptions	15	15	8	8	11	3	13	38	49 (whole year 93.)
Removed: Address unknown	21	25	24	27	19	5	7	12	7
Had Small-pox	—	—	—	1	—	—	—	—	—
Children born in other districts but vaccinated here ..	—	6	62	66	47	41	40	8	—

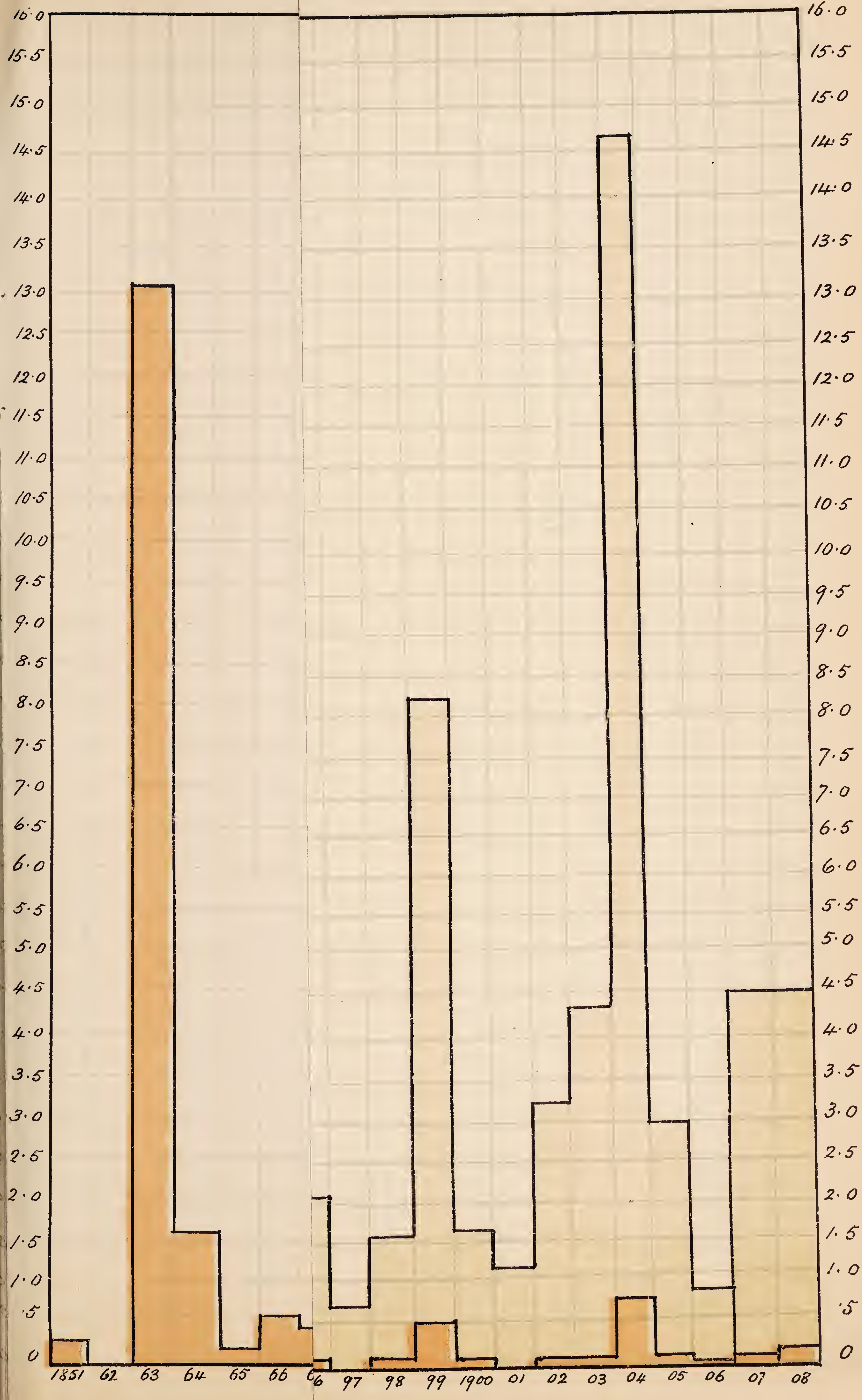
Total number of Exemptions for the year 1908—93.

In the month of August, 1907, an amendment of the Vaccination Act, 1898, was passed allowing a Statutory declaration as to conscientious objection to be substituted for the certificate of justices. The immediate results of this altered legislation are to be seen by referring to the increased number of exemptions during the last year. The future effects will doubtless be a severe epidemic of Small-pox.

SCARLET FEVER.—321 cases of Scarlet Fever have been notified during the year, 16 of which terminated fatally.

The increased prevalence of this disease which was noticeable during 1907 has therefore continued during 1908. Although there were a few severe fatal cases which have caused the death-rate from the disease to be somewhat higher than during the three preceding years, the majority of the cases have been mild ones. So mild have some of the attacks been that the parents have not noticed a rash, and the first indication that the child was suffering from Scarlet Fever has been the peeling of the child's skin. Such cases as these are in great measure the cause of the continued prevalence of the disease, for, however strict may be the isolation of pronounced cases, it will avail little in stamping out the disease so long as undetected mild cases are mixing with the general public, and in some instances attending school. An effort has been made to meet the difficulty by examining all children who have been absent from school on account of sore throat before allowing their return, and by this means several cases have been detected.

CHARTLET FEVER FROM 1881.



ulation.

The number of cases of Scarlet Fever which were notified and the number of deaths which were attributed to the disease, during each month of the year, are given in the following table:—

Month.	No. of Cases.	No. of Deaths.
January	27	3
February	29	1
March	32	1
April	11	—
May	17	—
June	13	—
July	12	—
August	13	2
September	34	—
October	41	3
November	38	3
December	54	3
Total	321	16

SCARLET FEVER IN WARRINGTON DURING 48 YEARS.

Year.	Population.	Cases of Scarlet Fever.	Deaths from Scarlet Fever.	Case Mortality per cent.	Cases per 1000 living.	Deaths per 1000 living.	Percentage Isolated in Hospital.
1861	26,107	—	2	—	—	·1	—
1862	26,726	—	—	—	—	—	—
1863	27.345	—	383	—	—	13·1	—
1864	27,964	—	45	—	—	1·6	—
1865	28,583	—	3	—	—	·1	—
1866	29 202	—	15	—	—	·5	—
1867	29,821	—	11	—	—	·3	—
1868	30,440	—	12	—	—	·3	—
1869	31,059	—	109	—	—	3·1	—
1870	31,678	—	20	—	—	·6	—
1871	32,297	—	12	—	—	·3	—
1872	33,227	—	9	—	—	·2	—
1873	34,157	—	34	—	—	·9	—
1874	35,087	—	25	—	—	·7	—
1875	36.017	—	53	—	—	1·4	—
1876	36,947	—	16	—	—	·4	—
1877	37,877	—	45	—	—	1 1	—
1878	38,807	—	104	—	—	2·8	—
1879	39,737	—	40	—	—	1·1	—
1880	40,667	65	12	—	—	·3	—
1881	41.632	362	22	6·0	8·7	·6	88
1882	42,600	306	50	16·3	7 2	1·2	66
1883	43,814	127	27	20·8	2·9	·5	72
1884	44,482	27	4	14·8	·7	·1	77
1885	45,408	20	—	—	·4	—	50
1886	46,343	10	—	—	·2	—	80
1887	47,264	74	1	1·3	1·6	·02	79
1888	47,464	660	77	11·8	13·9	1·6	79
1889	49,000	256	32	12·5	5·2	·7	84
1890	51,000	131	16	12·2	2·6	·3	83
1891	52,986	70	9	12·8	1·3	·2	71
1892	53,809	510	66	12	9·5	1·2	76
1893	54,661	364	43	12	6·7	·8	79
1894	55.504	354	45	12·7	6·4	·8	82
1895	56,366	235	17	7·2	4·2	·3	85
1896	57,219	114	8	6·9	2·0	·1	92
1897	60,877	47	3	6·2	·8	·04	80
1898	61,465	107	9	8·4	1·7	·1	80
1899	62,761	513	29	5·7	8·2	·5	64
1900	63,560	115	8	6·9	1·8	·1	80
1901	64,465	80	1	1·3	1·2	·001	88
1902	65,842	211	9	4·3	3·2	·1	91
1903	67,153	289	8	1·4	4·3	·1	95
1904	68,490	1,042	52	5·0	15·5	·7	87
1905	69,153	201	9	4·0	2·9	·1	77
1906	70,364	64	2	3·1	0·9	·02	78
1907	71,849	311	12	3·7	4·3	·16	77
1908	72,562	321	16	4·9	4·4	·22	72

SCARLET FEVER.

AVERAGES FOR FIVE-YEAR PERIODS SINCE NOTIFICATION AND ISOLATION BEGAN (and for the Years 1906, 1907 and 1908).

	1881-85.	1886-90.	1891-95.	1896-1900.	1901-5.	1906.	1907.	1908.
Cases	168	126	306	179	364	64	311	321
Deaths	20·6	25·2	36	11·4	15	2	12	16
Case Mortality % .	15·6	7·6	11·3	6·8	3·2	3·1	3·7	4.9
Cases per 1,000 living	4·0	4·7	5·6	2·9	5·4	·9	4·3	4.4
Deaths per 1,000 living	·5	·5	·6	·2	·2	·02	·16	.22
Percentage Isolated ..	70	81	78	79	87	79	77	72

DIPHTHERIA.—There were 123 cases of this disease notified, 16 of which terminated fatally. The gradual increase in the prevalence of this disease in most large towns during recent years was commented upon in my report for 1907. As in connection with Scarlet Fever, so with Diphtheria, there are many instances of the disease which are looked upon as cases of simple sore throat and which escape detection. These undetected cases mix with the general public and even attend school, and thus the spread of the disease can easily be accounted for. The routine examination of children absent from school on account of "sore throat" before allowing their return has led to the discovery of several of these unsuspected cases.

Bacteriology will now enable us to say in practically all instances whether or not any case of sore throat is one of Diphtheria, and whether or not any case of Diphtheria has ceased to be infectious. The only way, therefore, by which we can hope to control this disease is by the more extended and systematic use of the bacteriological laboratory both in connection with cases of "sore throat" and also as regards cases of Diphtheria before they are pronounced to be free from infection and allowed to mix with the public.

Infection continues to remain in the throats of certain diphtheria convalescents for prolonged periods, and it is impossible to detect such dangers to the public without a bacteriological examination of all Diphtheria convalescents being undertaken.

These precautions are taken before patients who have suffered from the disease are sent out from the Isolation Hospital, but they are equally essential in all instances, whether the patient is treated in Hospital or at home.

Persons who come into close contact with diphtheria patients may also have the infection of Diphtheria in their throats without showing any signs of illness. These "contacts" may carry the infection to others and swabbings should therefore be systematically taken from their throats and submitted to bacteriological examination, in order that the infection-carriers may be detected.

The following table illustrates the prevalence of Diphtheria during the past fifteen years.

	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
. of cases of Diphtheria notified	10	5	8	8	9	22	23	25	24	34	34	27	28	78	123
ath-rate for Diphtheria per ,000	·08	·08	·03	·04	·15	·12	·20	·12	·09	·01	·05	·12	·12	·19	·22
. of cases admitted to Hospital..	1	—	—	2	2	1	2	9	9	20	4	8	8	43	78

DEATHS FROM SCARLET FEVER, DIPHTHERIA, MEASLES, AND WHOOPING COUGH DURING PAST EIGHTEEN YEARS.

YEAR.	SCARLET FEVER.		DIPHTHERIA AND MEMBRANOUS CROUP.		MEASLES.		WHOOPING COUGH.	
	Under 5 years.	5 years and over.	Under 5 years.	5 years and over.	Under 5 years.	5 years and over.	Under 5 years.	5 years and over.
1890	13	3	11	6	32	1	53	1
1891	5	4	10	1	72	8	18	1
1892	46	20	2	7	2	11	37	...
1893	34	9	10	3	71	1	23	1
1894	35	10	4	1	17	...	37	1
1895	13	4	5	...	107	4	9	1
1896	7	3	2	...	62	1	44	4
1897	2	1	1	2	52	...	28	...
1898	4	7	4	2	27	1	19	...
1899	21	8	6	2	68	1	33	1
1900	4	3	12	1	5	...	20	3
1901	1	...	8	...	62	3	46	3
1902	6	3	5	1	10	1	15	...
1903	3	5	10	1	94	3	30	...
1904	37	15	24	2	33	3	81	5
1905	3	6	3	4	64	2	5	11
1906	1	1	4	5	29	4	33	...
1907	9	3	10	4	52	6	10	1
1908	8	8	13	3	26	...	58	2
Totals for 19 years...	252	113	144	45	885	50	599	35
Totals: all ages ...	365		189		935		634	

TABLE FOR COMPARISON OF THE PREVALENCE OF SICKNESS AND DEATHS FROM INFECTIOUS DISEASES

(RATES CALCULATED PER 1,000 POPULATION).

YEAR.	Smallpox.		Erysipelas.		Diphtheria & Membranous Croup.		Scarlet Fever.		Enteric and Continued Fever.		Puerperal Fever.		Measles.		Whooping Cough.	
	Cases	Death Rate.	Cases	Death Rate.	Cases	Death Rate.	Cases	Death Rate.	Cases	Death Rate.	Cases	Death Rate.	Cases	Death Rate.	Cases	Death rate.
1891...	nil.	nil.	—	·094	21	·207	70	·162	41	·264	—	·037	—	1·700	—	·358
1892...	489	1·015	—	—	14	·129	510	1·218	39	·203	—	—	—	·241	—	·684
1893...	185	·234	3	·018	18	·234	364	·777	41	·307	—	nil.	—	1·317	—	·435
1894...	3	—	24	·070	9	·088	354	·798	33	·141	3	·053	—	·306	—	·678
1895...	—	—	44	017	16	·086	235	·294	44	·208	5	·071	—	1·906	—	·175
1896..	1	—	26	—	8	·034	114	·170	35	·085	5	·085	—	1·101	—	·826
1897...	—	—	34	·033	8	·051	47	·051	41	·086	5	·051	—	·854	—	·455
1898...	—	—	20	·016	9	·163	107	·147	41	·229	8	·049	—	·455	—	·302
1899...	—	—	44	—	22	·128	513	·449	149	·385	2	·016	—	1·099	—	·531
1900...	—	—	23	·015	23	·109	115	·109	62	·219	5	·031	—	·078	—	·353
1901...	1	·017	44	·015	25	·124	80	·017	33	·062	4	·077	—	1·008	—	·760
1902..	4	·015	40	·045	24	·091	211	·137	32	·091	10	·106	—	·166	—	227
1903...	86	·059	32	·014	34	·016	289	·119	22	·029	1	·014	—	1·518	—	·446
1904..	47	·058	79	·131	34	·058	1066	·759	20	·043	6	·028	—	·534	—	1·25
1905...	1	—	61	·028	27	·124	201	·131	15	·058	15	·144	—	·966	—	·231
1906...	1	—	68	·09	28	·12	64	·02	43	·056	8	·02	—	·46	—	·468
1907...	—	—	21	·027	78	·19	311	·16	21	·083	9	·027	—	·807	—	·152
1908...	—	—	42	·054	123	·22	321	·22	33	·151	12	·041	—	·35	—	·82

ANNUAL REPORT ON THE CORPORATION HOSPITALS FOR 1908.

AIKIN STREET ISOLATION HOSPITAL.

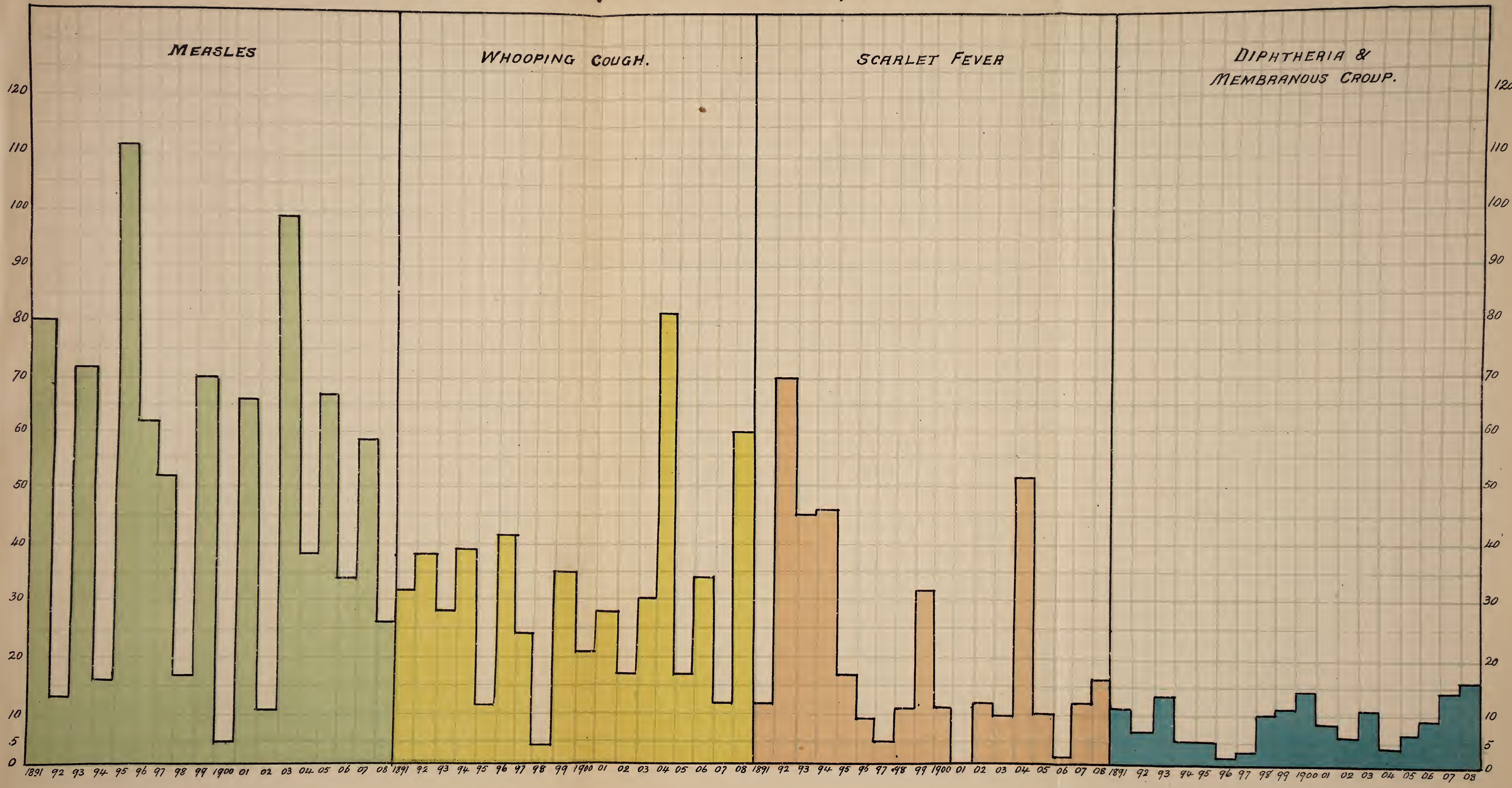
		Recognized Accommodation.
WARDS.	Acute Scarlet Fever	24 beds.
	Convalescent Scarlet Fever	12 ,,
	Enteric Fever	12 ,,
	Diphtheria	4 ,,
Additional	Old Administrative Block will accommodate	16 ,,
	The Hut will accommodate	3 ,,

The hut, a relic of the Smallpox Epidemic of 1892, is now used for the reception of Phthisis patients during the summer months. Three patients can be received at a time.

The following table is a summary of the number of patients and of the diseases for which they were under treatment during 1908:

	From the Borough.	From Warrington Rural District.	From Newton Urban District.	Total.
1. Remaining in hospital at the end of 1907 ...	42	—	7	49
2. Admitted during 1908:				
As Scarlet Fever ...	232	6	25	263
,, Enteric Fever ...	21	3	3	27
,, Diphtheria ...	78	5	9	92
,, Phthisis	8	—	—	8
Under treatment during 1908	381	14	44	439
3. Deaths during 1908:				
Scarlet Fever ...	12	—	1	13
Enteric Fever ...	5	—	—	5
Diphtheria	6	2	—	8
Other diseases ...	—	1	—	1
Totals	23	3	1	27
4. In hospital at the end of 1908	64	2	1	67

Chart to Shew the Total Yearly Deaths from 1891 to 1908, from four important Epidemic Diseases.



SANKEY SANATORIUM FOR SMALLPOX.

The original plans are not completed, except as regards the Wards. The Administrative Block is not yet built, nor is the disinfecting apparatus installed.

Plans for a small Administrative Block have, however, been recently submitted to the Local Government Board for their approval, and it has been decided by the Committee that the disinfecting apparatus be provided at an early date. Until the Hospital has been thus completed, it cannot be said that the town is prepared to deal with an outbreak of Smallpox.

			Recognized Accommodation.
WARDS.	(1)	For Smallpox	12 beds.
	(2)	For Separation of Doubtful Cases	4 ,,

There have been no cases treated at this hospital since September, 1905, and, as has been suggested, it is much to be desired that these very excellent wards should, in the absence of Smallpox, be used for the accommodation of cases of Pulmonary Tuberculosis.

The following BACTERIOLOGICAL EXAMINATIONS have been carried out during the year at the laboratory at Aikin Street Hospital :—

In connection with Diphtheria.

For diagnosis of cases in Hospital	77	348
For diagnosis of cases under treatment of private practitioners	29	
For diagnosis of cases of sore throat	9	
Before discharge of a case from Hospital	46	
Examination of contacts	187	

In connection with Enteric Fever.		
For diagnosis of cases in Hospital	30	46.
For diagnosis of cases under treatment of private practitioners	16	
In connection with Tuberculosis.		
For diagnosis of cases in Hospital	7	17.
For diagnosis of cases under treatment of private practitioners	10	
Other investigations	6	6.
	Total	417.

THE DOMESTIC WATER SUPPLY OF THE BOROUGH.

Samples of water supplied to the Borough for domestic purposes have been submitted to chemical and bacteriological examination during the year (see pages 40).

The chemical analyses have given uniformly good results except as regards two samples, one taken on November 19th and the other on December 17th, which were somewhat below the usual standard of purity.

The bacteriological reports, except those concerning the samples taken on July 2nd, July 15th (two samples), and September 14th, have also been satisfactory. Some disturbance with the water-main accounted for sample taken on September 14th being unsatisfactory, but no local cause for the condition of the other samples, which gave evidence of contamination, was discovered.

I may add that a bacteriological examination is a more delicate test as to the purity of a water sample than the chemical analysis, and the bacteriologist may discover evidence of pollution which the chemist has been unable to detect.

SAMPLES OF WATER (THE GENERAL DOMESTIC SUPPLY OF THE BOROUGH) SUBMITTED TO BACTERIOLOGICAL EXAMINATION AT THE THOMPSON YATES LABORATORY, LIVERPOOL UNIVERSITY, DURING THE YEAR 1908.

Date.	Where taken.	No. of Bacteria per C.C. (grown on gelatine at 20° C).	B. Coli. Communis.
Jan. 16th	Parr Hall	25	Absent per 100 C.C.
,, ,,	Do.	19	Present per 100 C.C. Absent per 90 C.C.
,, ,,	Do.	17	Absent in 100 C.C.
May 26th	5, Green Bank Street ...	93	Present in 90 C.C. Absent in 80 C.C.
June 3rd	Tap, Union Workhouse Kitchen.	186	Absent in 100 C.C.
July 2nd	Aikin Street Hospital, Kitchen in Home.	48	Present in 30 C.C. Absent in 20 C.C.
,, 15th	Do.	39	Present in 40 C.C. Absent in 30 C.C.
,, ,,	16, Haydock Street	86	Do.
,, 27th	Do.	16	Absent in 100 C C.
,, ,,	Administrative Block Kitchen, Aikin Street.	3	Do.
Sept. 14th	26, Alexander Street ...	127	Present in 10 C.C. Absent in 1 C.C.
Oct. 6th	3, Paul Street	24	Absent in 100 C.C.
,, ,,	26, Alexander Street ...	77	Present in 80 C.C. Absent in 70 C.C.
Nov. 19th	Aikin Street Hospital, Administrative Block Kitchen	503	Do
,, ,,	26, Alexander Street ...	132	Absent in 100 C.C.
Dec. 17th	21, Oxford Street	53	Do.
,, ,,	Aikin Street Hospital, Kitchen.	42	Do.
April 22nd	Delph Lane Wells	26	Do.
,, ,,	Winwick Wells	139	Do.
,, ,,	Delph Lane and Winwick (mixed).	81	Do.

SHALLOW WELLS.

There are seven shallow wells in use in the Borough. Six of these are in connection with private slaughterhouses, and the Committee has recently decided that the ordinary water supply of the town must be substituted.

In two instances the wells formed the only water supply for a house; in the one case the ordinary supply of the town has been laid on, and in the other steps are being taken to attain this end.

SAMPLE OF WATER FROM SHALLOW WELLS IN THE BOROUGH SUBMITTED TO BACTERIOLOGICAL EXAMINATION AT THE THOMPSON YATES LABORATORY, LIVERPOOL UNIVERSITY, DURING THE YEAR 1908.

Date.	Sample Number.	No. of Bacteria per C.C. (grown on gelatine at 20° C).	B. Coli. Communis.
May 13th	C	1,312	Present in 10 C.C. Absent in 1 C.C.
,, 26th	D	Innumerable.	Present in 20 C.C. Absent in 10 C.C.
Sept. 14th	J	156	Present in 10 C.C. Absent in 1 C.C.
,, ,,	K	215	Do.
,, ,,	L	58	Do.
,, ,,	M	270	Do.
,, ,,	N	471	Do.

SAMPLES OF APPLETON WATER SUBMITTED TO BACTERIOLOGICAL EXAMINATION DURING THE YEAR 1908.

Jan. 16th	Parr Hall (firestand) ...	38	Absent in 100 C.C.
,, 29th	Immediately after leaving filter beds.	55	Do.
,, ,,	Tap, Town Hall Yard ...	38	Do.

34 samples of milk were submitted to bacteriological examination at the Thompson Yates Laboratory, Liverpool University, and tubercle bacilli were not detected in any of these.

Samples of Water (the general domestic supply of the Borough) submitted to the Public Analyst for chemical analysis during the year 1908.

Report.

Date.	Where taken.	Free Ammonia.	Albuminoid Ammonia.	Oxygen absorbed 4 hours	Nitrogen as Nitrates.	Chlorine.	Solids Total.	Solids Fixed.
Jan. 16	Parr Hall	free	·003	nil	·60	2·10	33·6	23·7
,, 16	,, ,,	free	·0014	nil	·54	2·10	34·3	22·8
Feb. 10	The Rectory	·0004	·0026	·004	·5	1·9	32·0	25·0
,, 16	,, ,,	·001	·0026	·004	·5	1·9	28 0	20·0
May 26	5, Greenbank street	·0005	·0024	nil	·5	2·2	32·0	24·0
June 2	Workhouse	nil	·003	nil	·5	2·1	34·0	23·0
July 15	Aikin street Hospital	nil	·0015	nil	·45	2·2	32·0	22·0
Sept. 14	26, Alexander street	·001	·001	·024	·51	2·3	32·0	28·0
Nov. 19	Aikin street Hospital	·001	·0056	·003	·5	2·45	34·0	23·0
Dec. 17	21, Oxford street	·001	·005	·003	·7	2·35	34·0	23 0
,, 17	Aikin street Hospital	free	002	nil	·6	2·2	34·0	24·0

Samples of Water taken from shallow wells within the Borough and submitted to the Public Analyst for chemical analysis during the year 1908.

Date.	Sample Marked.	Free Ammonia.	Albuminoid Ammonia.	Oxygen absorbed 4 hours.	Nitrogen as Nitrates.	Chlorine.	Solids Total.	Solids Fixed.
March 13	C	005	·0055	·051	·600	6·8	100 0	70·0
May 26	D	·0052	·011	·113	1·05	5 60	74 0	56 0
Sept. 14	J	·138	·006	·10	·20	10·6	195·0	157 0
,, 14	K	·200	·018	·23	·15	31·4	314·0	276·0
,, 14	L	3·720	·030	·36	—	34·5	263·0	223·0
,, 14	M	·009	·019	·112	·35	197·0	618·0	550·0
,, 14	N	·356	·014	·26	·20	11·7	165·0	151·0

SECTION III.

THE WORK OF THE LADY INSPECTOR.

During the year the Lady Inspector, Miss Pakes, has performed the duties of Inspector of Midwives and Health Visitor, but the greater part of her time has been devoted to the former work.

The work which has been done by Miss Pakes as Inspector of Midwives is as follows :

(1) Paying periodical visits to each midwife's home to ascertain that strict cleanliness is observed, and to examine the midwife's bag and registers.

(2) Investigating in certain instances the midwife's method of practice while conducting a case of labour.

(3) Holding a series of classes during the winter for the instruction of midwives ; and giving additional instruction, especially to the untrained midwives, as occasion arises.

(4) Keeping a record of all notices sent in by the midwives in accordance with the rules of the Central Midwives Board.

(5) Investigating all cases of still-birth occurring in a midwife's practice.

(6) Investigating and dealing with cases of Puerperal Fever.

(7) Making special enquiries in connection with any ascertained neglect of duty on the part of a midwife.

There were, during 1908, 28 certified midwives practising in the Borough, three of these also having midwifery practices outside the Borough. Of the 28 certified midwives, ten only have received special training in their work.

During the year these 28 midwives attended (according to their registers) 1,879 confinements in the Borough.

As far as can be ascertained, there are at present about seven uncertified women who act as midwives in the Borough. It is difficult to ascertain the number of labours conducted during the year by these uncertified women, but the number given by them is 182.

By taking these figures and making allowance for twins and still-births, the number of living children in Warrington brought into the world during 1908 by midwives amounts to 2,042 (approximately). Deducting this number from the total registered births in the Borough during the year, we obtain a figure 327, which represents the maximum number of children that could have been delivered by medical practitioners.

It is thus seen what a very important part is played by the midwife of to-day, and how necessary it is that she should be a thoroughly trained woman, for much depends not only on careful attention being given to the mother and child at the time of the birth, but also on correct advice being offered to the mother as regards the general care and feeding of the infant during the first twelve months of its life. If, as is shown by these figures, in 86 per cent. of births there is no medical man in attendance, it follows that in a large proportion of the cases such advice, if given at all, must come from the midwife (who at the present time is often quite unfitted to give any useful instruction), unless a systematic visiting of all new-born children, when a medical man has not been in attendance, is carried out by some properly qualified person.

The Midwives Act of 1902 forbids any uncertified woman to attend cases of labour after April 1st, 1910, unless under the direction of a medical practitioner, but as the work done by the uncertified woman is apparently inconsiderable, no lack of available midwives need be anticipated by next year.

Miss Pakes has also investigated during the year all deaths of children under one year of age, and has visited as far as possible those new-born babies which come under her notice, in order to give the mothers instruction as to the care and feeding of their offspring.

WORK UNDER MIDWIVES ACT.

Enquiries concerning still births	47
,, ,, cases of puerperal fever	5
Number of visits to Midwives	286
General visits (mostly in connection with Midwives) ...	175
Number of notices received from Midwives of sending for Medical help	169
Number of notifications by Midwives of deaths of children before the attendance of a doctor	10
Other work performed by Lady Inspector :—	
Number of visits to houses where there have been deaths of infants	306
,, ,, visits to houses to give advice on infant feeding	1017
,, ,, houses visited under the Public Health Acts	6

SECTION IV.

General Sanitary Administration.

THE PAVING AND SCAVENGING OF COMMON COURTS AND PASSAGES.

The Chief Inspector and myself paid special visits during the latter part of the year to the Common Courts and Yards in the Borough, and the conditions found to exist as to paving and scavenging are set forth in the summary given below. I have already referred to the defective paving and the unsatisfactory scavenging of these Courts and Yards, and, without further comment here, will leave the summary to speak for itself.

Name of Court or Common Yard.	Whether paved or unpaved.	Condition.	If paved surrounding pail closets and ash-places.	Whether liquid filth flowing from pail place.	Remarks.
Hughes Court.	Three feet immediately in front of houses paved with cobbles. About 500 sq. yards unpaved.	Very unsatisfactory.	Yes ; with cobbles.	Yes.	Unpaved land near pail closets covered with excreta and other filth.
Cambria Place.	Ditto.	Do.	Do.	Yes.	
Cheshire Cheese Yard.	Tiled path and remainder paved with cobbles.	Unsatisfactory.	Yes.	Yes.	
hesters Yard.	Cobble pavement over whole yard, with slight attempt at channelling.	Unsatisfactory. Water lodges in parts.	Yes ; with blue brick.	No.	
Nos. 10 to 22, Dallam Lane.	Tiled path, remainder paved with cobbles.	Fair.	Yes ; with cobbles.	Not at time of visit.	Pool of liquid filth lying on passage in rear of pail closets.
68 to 74, Dallam Lane.	Yes ; tiles.	Good.	Yes ; with tiles.	Yes.	Accumulation of filth in pail hole at time of visit preventing pail being fixed in correct position.
58 to 66, Dallam Lane.	Do.	Do.	Do.	Yes.	Do.
41 to 45, Tanners Lane.	Tiled path. About 100 sq. yards unpaved.	Unsatisfactory.	No.	Yes.	All kinds of refuse lying on unpaved surface.
Bakehouse Yard, Foundry Street.	Cobble path in front and about 80 sq. yards unpaved. In rear tiled path, 6ft. wide, about 30 sq. yards unpaved.	Do.	Only portion.	Yes.	Liquid filth flowing from pail place down slope on to paved path adjoining houses
Rylands Court, Foundry Street.	Yes ; blue brick.	Good.	Yes ; blue brick.	No.	Defective ashplace floor.
Malley's Yard, Foundry Street.	Flag path, 6ft. wide, remainder cobbles.	Unsatisfactory.	Yes ; cobbles.	Yes.	

Name of Court or Common Yard.	Whether paved or unpaved.	Condition.	If paved surrounding pail closets and ash-places.	Whether liquid filth flowing from pail place.	Remarks.
Bayhorse Yard, Foundry Street.	Yes ; setts.	Good.	Yes ; flags.	No.	
Chapel Court, Dallam Lane.	Cobbles.	Unsatisfactory.	Yes.	No.	
Little Weint, Butter-market Street	Cobble pavement.	Do.	Yes.	No.	Clean.
Wainwright's Yard.	Cobble pavement.	Do.	Yes.	No.	Clean.
2 to 12. Buckley Street.	Cobble path in rear and 60 sq. yards unpaved.	Do.	No.	Yes.	Bad approach to all closets in wet weather. Closets and ash places in defective condition.
10 to 16, Stamford Street.	Cobble path in rear and 20 sq. yards unpaved.	Do.	No.	Liquid filth lying in pail place.	
1 and 2, Stamford Yard.	Cobble path in front of each house, 9 sq. yards unpaved.	Do.	No.	No.	Entrance to court unpaved.
2 to 10, Back Stamford Street.	Paved with setts in rear of houses, front passage unpaved.	Good.	Yes.	No.	
Pemberton's Yard, Winwick Road.	Tiles.	Do.	Yes.	Yes.	
Berry's Yard.	Flags.	Fair.	Yes, flagged.	Liquid filth in pail place and ash place.	Closets situate near houses. This property is at present being dealt with under H.W.C.A., 1890 and 1903.
Six Houses, Dallam Lane.	Yes ; with setts.	Good.	Yes, flagged.	No.	Closets situate only 2½ feet from dwelling-house.

Name of Court or Common Yard.	Whether paved or unpaved.	Condition.	If paved surrounding pail closets and ash-places.	Whether liquid filth flowing from pail place.	Remarks.
Old Gardens, Winwick Road.	Blue brick footpath 8 feet wide. Very large area unpaved.	Paved. part satisfactory.	No.	Yes.	A large area of vacant land slopes towards this property, allowing surface water to flow towards and accumulate near houses.
Knowles Yard, Oliver Street.	Tiled footpath, remainder paved with cobbles, flags and wood.	Fair.	Yes.	No.	Very clean.
371 to 379, Winwick Road, and 1 to 7, Alder Lane.	Tiled path, 3ft. wide, rest unpaved (about 300 sq. yards).	Unsatisfactory.	No.	No.	Very dirty yard.
9 to 21, Alder Lane.	Tiled path, 3ft. wide, about 300 sq. yards unpaved.	Do.	No.	Yes.	Do.
3 to 19, Antrobus Street.	Tiled footpath in rear 5ft. wide, portion paved with cobbles one yard wide, 135 sq. yards unpaved.	Do.	No.	Part of yard near pail place flooded with water at time of visit.	Unpaved area in yard undrained, and a large pool of water surrounding pail-closets and ash-places preventing access thereto.
4 to 14, Antrobus Street.	Path in rear, 2 yards wide (3ft. tiles, 3ft. cobbles), about 170 sq. yards unpaved.	Do.	No.	Yes.	Large pools of water lying on unpaved portion.
Taylor's Yard (1). Taylor's Yard (2).	Tiled path, 3ft. wide, part paved with cobbles; two pieces unpaved, 32 sq. yards and 65 sq. yards.	Do.	No.	Yes.	Ash-place floor sunk.
Smith's Court, Winwick Road.	Cobbles.	Do.	Yes; flagged.	No.	
Chapel Court, John Street.	Tiled path, 5ft. wide in front of houses, 100 sq. yards unpaved.	Do.	No.	Yes.	Passage leading into court from John Street unpaved.
1 to 6, Back Haydock Street.	Paved with blue brick.	Good.	Yes.	Yes.	Pail closets for Haydock Street property are very near these houses and liquid filth from the pail places flows on to the paved yard for Back Haydock Street.

Name of Court or Common Yard.	Whether paved or unpaved	Condition.	If paved surrounding pail closets and ash-places.	Whether liquid filth flowing from pail place.	Remarks.
Arnold's Yard, Haydock Street.	Part tiled, part paved with cobbles, about 50 sq. yards unpaved.	Unsatisfactory.	Tiled path 3ft. wide round closet and ashplaces.	Yes.	
Buckley's Yard, Haydock Street.	Tiled path 4ft. wide in front of houses, 150 sq. yards unpaved.	Do.	No.	Yes.	Closet nearest entrance to yard in a dirty condition. Fault of occupier.
Boardman's Court.	Tiled path 4ft. wide in front of houses, about 400 sq. yards unpaved.	Do.	No.	Yes.	Closets in a defective condition.
Leigh's Yard.	Tiled footpath 4ft. wide in front and rear, about 250 sq. yards unpaved.	Do.	No.	Yes.	Closets in a defective condition.
50 to 60, Turner Street, and 1 to 7, Rodney Street.	Cobble pavement.	Do.	Yes; cobbles.	Yes.	Closets very dirty and in a defective condition.
Alcock's Yard, Rodney Street.	Tiled.	Good.	Yes.	No.	
Turner's Yard.	Tiled path, remainder paved with cobbles.	Unsatisfactory.	Yes; cobbles.	Yes.	Pavement round pail closets and ash places in a filthy condition.
Pinshop Yard, Turner Street.	Sett pavement in front of houses, cobbles in rear.	Cobble pavement in very dirty condition. Yard not scavenged.	Do.	Yes.	
Rudd's Yard, Turner Street.	Flagged path, remainder cobbles.	Fair.	Do.	Liquid filth lying in ashplace.	
Dolan's Yard, Orford Street.	Cobble pavement.	Unsatisfactory.	Do.	Yes.	Filth in pail place.
Pocket Street.	Cobble pavement, back and front.	Do.	Yes; cobbles and flags.	Yes.	
Heaton's Square.	Part cobbles, 60 yards unpaved.	Do.	Do.	Yes; on to defective cobble pavement.	3 closets unlocked and in a filthy condition.

Name of Court or Common Yard.	Whether paved or unpaved.	Condition.	If paved surrounding pail closets and ash-places.	Whether liquid filth flowing from pail place.	Remarks.
Warburton's Yard. Naylor Street.	Cobble pavement.	Unsatisfactory.	Yes; cobbles.	Stream of liquid filth running to centre of yard.	Closets situate very near to dwelling.
Richardson's Court.	Tiled path; remainder paved with cobbles.	Do.	Yes; cobbles and tiles.	Yes.	Closet situate against back window of No. 13, Naylor Street.
Culm's Yard.	Cobbles.	Do.	Yes; cobbles.	No.	
Garner's Brow.	Blue brick and cobbles.	Good.	Yes; also drained.	Liquid filth flowing from pail place over paved surface into drain fixed near.	
Deloozes Place.	Part tiled in front, about 30 sq. yds. Part at back of houses paved with blue brick.	Front unsatisfactory. Back satisfactory.	No.	Yes.	Ashplace requires re-flagging.
Pilling's Court.	Tiled footpath in front of houses (4ft.). About 100 sq. yards unpaved.	Unsatisfactory.	One block tiled round. Second block with unpaved surface round.	No.	Pavement in rear of house 32, Dial St. (which opens out into this court) very defective.
Webster's Yard.	Tiles.	Fair.	Yes.	No.	Closets situate near dwellings. Notice has been served to convert to w.c.'s.
Pilkington's Yard.	Blue brick path; remainder paved with cobbles.	Unsatisfactory.	Yes; cobbles.	Yes.	
Robinson's Yard.	Tiled path. Portion of yard unflagged; portion paved with cobbles.	Do.	Portion tiled; portion paved with cobbles; portion unpaved.	Yes; filth flowing both on to cobbles and on to unpaved portion.	

Name of Court or Common Yard.	Whether paved or unpaved.	Condition.	If paved surrounding pail closets and ash-places.	Whether liquid filth flowing from pail place.	Remarks.
Trafalgar Court.	Paved with cobbles; about 40 sq. yards unpaved.	Unsatisfactory.	No.	No.	This court is in a very dirty condition.
Jolley's Court, Brick Street	Paved with tiles and blue brick.	Good, but in dirty state at time of visit.	Yes.	Yes.	
Ayden's Yard, Brick Street.	Part paved with cobbles; about 100 sq. yards unpaved.	Unsatisfactory.	Yes.	Yes.	Front passage should be paved with blue brick, setts or flags.
9 to 22, Back Crossley Street.	In front, cobble path and large unpaved area. At back, paved with blue brick and cobbles.	Do.	Yes; blue brick.	No. Yes.	
Barnes' Yard, Dolman's Lane.	Setts and flags.	Do.	Yes.	No.	Pail place floor lower than surrounding ground. Liquid filth lying on surface.
Williamson Square.	Tiled path, remainder paved with cobbles.	Do.	Yes; blue brick.	No.	
3 to 29, Morris Court, Church Street.	Cobbles.	Do.	Yes; cobbles.	Yes.	Liquid filth from pail places allowed to accumulate in channel and on sunken pavement. Ground between cobbles saturated.
2 to 10, Morris Court, Church Street.	Cobbles back and front.	Do.	Do.	Yes.	Filth in pail place at No. 2. Liquid filth lying in channel. The yard in rear is not scavenged by Corporation men and is in a very dirty condition.
12 and 14, Morris Court, Church Street.	Part tiles, part cobbles. About 100 sq. feet unpaved.	Do.	Do.	Yes.	

Name of Court or Common Yard.	Whether paved or unpaved.	Condition.	If paved surrounding pail closets and ashplaces.	Whether liquid filth flowing from pail place.	Remarks.
Bolton's Yard, Mersey Street.	Cobbles.	Unsatisfactory.	Yes ; cobbles.	Liquid filth lying in pail place.	
Litton's Row, Mersey Street.	Blue brick and cobbles.	Do.	Yes ; cobbles and flags.	Do.	Water lodges in ashplace. Surrounded by ground higher than surface of pail and ashplaces.
Barrow's Yard.	Blue brick.	Good.	Yes.	Unable to ascertain on account of accumulation of bricks, &c. near pail place.	Accumulation of bricks and other refuse in ashplace.
Lomax Yard	Do.	Do.	Yes.	No.	Do.
Toft's Yard, Hall Street.	Blue brick path, 4ft. wide; rest paved with cobbles.	Unsatisfactory.	Yes.	No.	Do.
1 to 5, Friars Lane and Jolley's Yard.	Paved with blue bricks and cobbles ; 3 sq. yards unpaved.	Do.	Yes ; cobbles.	Yes.	Ashplace roof defective. Filth in pail places.
Dale Court.	Yes ; flagged.	Good.	Yes ; flags.	No.	
Litherland's Yard.	Yes ; with cobbles.	Unsatisfactory.	Tiles.	No.	
Buckley's Yard.	Tiled footpath ; 300 sq. yards unpaved.	Do.	No.	Yes.	
Speakman's Yard.	Yes ; tiles.	Good.	Yes ; tiles.	No.	
16 to 22, Old Road.	Yes ; cobbles.	Unsatisfactory.	Yes ; cobbles.	No.	
Fairclough's Yard.	Part paved, part flagged, part paved with cobbles and about 14 sq. yards unpaved.	Fair.	Yes; flags and tiles	No.	
Welch's Yard, Old Road.	Flag path 3ft. wide ; rest paved with cobbles.	Unsatisfactory.	Yes ; blue brick and cobbles.	No.	This property is being dealt with under the H.W.C. Acts, 1890—1903.

DISINFECTANTS AND THEIR USES.

Closely allied to the question of cleansing and scavenging is that of the use of disinfectants.

Until recently Corporations have been using substances for disinfecting purposes without any definite knowledge that the preparations were efficient ones, and have taken with implicit trust the manufacturers' uncorroborated statements as to the efficacy of their wares.

Because the preparation has the power of destroying a smell, it has been accepted as a destroyer of the much more resisting germs which have given rise to the smell or which have been associated with these smell-producing germs.

It is now known that many substances will act as deodorisers, *i.e.*, will destroy smells, but will have very little or no effect on the germs contained in the putrefying matter giving off the smell ; and the application of one of these deodorisers to such matter is not only useless from the point of view of destroying infection but is even a source of danger, for the smell having disappeared it may be wrongly concluded that the infection has also disappeared. These deodorisers are also dangerous in another way—by destroying a smell they may do away with a very useful danger signal that something is wrong. They may be applied to organic matter which should be cleared away, and which, but for the action of the deodoriser, would be cleared away on account of the nuisance it would cause. But when a deodoriser is added, the matter is left lying about with all its contained bacteria because it does not smell or cause a nuisance. In like manner a deodoriser may be applied around a noxious gully, and may destroy the smell which would otherwise give the warning that there was some faulty construction in the gully or drain connected therewith. For such reasons as these I deprecate the indiscriminate use of disinfectants in such connections as with drains or insanitary areas because they tend to cause defects to be overlooked and adequate cleansing to be neglected, while they offer no security against infection.

To come now to the actual disinfectants, we have for some time past known from experiment and from actual experience that certain of these may be relied upon to kill certain germs under certain conditions. Chief among these disinfectants has been carbolic acid which is even now perhaps one of the best all-round germ killers which we possess. Carbolic acid is however somewhat expensive for general use and is also a very strong poison ; and for these and other reasons many rival preparations have been put on the market. Fortunately by the aid of bacteriological experiment we are now able to test the efficacy of these new preparations and to compare their germ killing power with that of carbolic ; and there are now many cheap disinfectants which have been shown by experiment to compare very favourably in germ killing power with carbolic acid. The practical application of these experiments is, however, not yet complete, for the results of experiments conducted in the laboratory as to the action of certain disinfectants on microbes contained in water are not necessarily applicable to what occurs in the practical use of the disinfectant. In the every day use of a disinfectant it is required to act on germs which are mixed up with matter of varied constitution, and which may in many ways be protected by this matter from the action of the disinfectant. With our present knowledge, we should not purchase a disinfectant unless the following conditions are fulfilled :—

(1) We should know its germ-killing power when acting in solutions of certain strength on certain germs under certain conditions, these conditions being as far as possible similar to those obtaining in the practical use of the disinfectant. (These experiments must be carried out by a skilled bacteriologist who must be independent of the manufacturers of the disinfectant.)

(2) The manufacturers should guarantee the disinfectant to have a minimum germ-killing power when used in solution of certain strength on certain germs under certain conditions.

(3) The disinfectant should be cheap and non-poisonous ; it should be soluble in water or form a fine emulsion with it, and it should not possess chemical properties which unfit it for general use.

In the practical use of a disinfectant, we must always see that it is used in requisite strength. The attempt to disinfect a drain or sewer by pouring down some disinfectant which, when mixed with the contents of the drain or sewer, cannot be of sufficient strength to kill any germs, is a waste of time and money. The same remarks apply to the watering of roads and the flushing out of passages, etc. with disinfectant solutions which are so weak as to be worthless. Flushing with simple water is much to be preferred.

So-called " disinfecting powders " are as a rule useless for disinfecting purposes : they may act as deodorisers. Their use in connection with gulleys and insanitary areas is to be deprecated for reasons given above. Plain soap is often a far better cleanser than many of the so-called " disinfectant soaps," and the term "disinfectant" is often quite inapplicable to the latter soaps. It will be very advantageous if, as has been suggested, disinfectants are brought under the control of the Sale of Food and Drugs Acts, the manufacturers being compelled to state the minimum germ-killing power of the preparation when tested under certain fixed conditions and authorities being empowered to take proceedings against the manufacturers under the above amended acts if the disinfectants are found to be below the guaranteed standard.

SECTION V.

HOUSING OF THE WORKING CLASSES ACTS, 1890—1903.

During the year 1908, the following houses were condemned under the above Acts, as unfit for human habitation :—

25, Bank Street, closed by owner.

1, 3 and 5, Dial Court, closed by owner.

32, Dial Street, no alterations made.

1, Pillings Court, closed by owner.

2, 3 and 4, Pillings Court, no alterations made.

1 and 2, Robinsons Yard, King Street, certain work done, but houses not yet satisfactory.

9 and 11, Culms Yard, demolished.

27, 29, 31, 33 and 35, James Street, demolished.

1 and 2, Rose Yard, demolished.

3 and 4, ,, ,,

4, 5, 6, 7, 8, 9 and 10, Croppers Brow, closed by owner

2, 4, 6 and 8, Berrys Yard, no alterations made.

1 and 2, Dale Court, closed by owner.

16, Litherlands Yard, certain work done, but house not yet satisfactory.

1, 2, 3, 4 and 5, Welchs Yard, closed by owner.

6, 7, 8 and 9, Welchs Yard, closed by owner.

5, James Street, closed by owner.

15 and 16, Lower Ship Yard, certain work done, but houses not yet satisfactory.

1 and 2, Banners Yard, no alterations made.

1 and 2, Warburtons Yard, ,, ,, ,,

FACTORIES, WORKSHOPS, LAUNDRIES, WORKPLACES, AND HOMEWORK.

1. —INSPECTION.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises.	Number of		
	Inspections.	Written Notices.	Prosecutions.
Factories (including Factory Laundries)...	34	2	...
Workshops (including Workshop Laundries)	760	7	...
Workplaces (other than Outworkers' premises included in Part 3 of this Report)...	225	3	...
Total	1019	12	...

2.—DEFECTS FOUND.

Particulars.	Number of Defects.			Number of Prosecutions.
	Found.	Remedied.	Referred to H.M. Inspect'r	
NUISANCES UNDER THE PUBLIC HEALTH ACTS : *				
Want of cleanliness	5	5	...	...
Want of ventilation	...	...	...	...
Overcrowding	..	...	...	...
Want of drainage of floors	...	...	...	...
Other nuisances	8	8	...	...
†Sanitary accommodation — insufficient	2	2	...	...
†Sanitary accommodation — unsuitable or defective	1	1	...	...
†Sanitary accommodation — not separate for sexes	1	1	..	...
OFFENCES UNDER THE FACTORY AND WORKSHOP ACT :				
Illegal occupation of underground bakehouse (S. 101)	1	1	...	...
Breach of special sanitary requirements for bakehouses (SS. 97 to 100)... ...	...	...	...	...
Other offences ... ... (Excluding offences relating to outwork which are included in Part 3 of this Report	...	...	...	...
Total	18	18	...	...

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* Including those specified in Sections 2, 3, 7 and 8, of the Factory and Workshop Act as remediable under the Public Health Acts.

† For districts not in London state here whether section 22 of the Public Health Acts Amendment Act, 1890, has been adopted by the District Council ; and if so what standard of sufficiency and suitability of sanitary accommodation for persons employed in factories and workshops has been enforced.

3.—*HOMEWORK.*

Outworkers Lists (Section 107) :—	Wearing Apparel.	File Making.
Lists received from Employers twice in the year		
Lists	4	4
Outworkers ...	8	59
Lists received from Employers once in the year.		
Lists	2	...
Outworkers ...	5	...
Numbers of Addresses of Outworkers received from other Councils ...	...	...
Numbers of Addresses of Outworkers forwarded to other Councils ...	...	59
Number of Inspections of Outworkers' Premises	31	...

4.—*REGISTERED WORKSHOPS.*

Workshops on the Register (S. 131) at the end of the year :—		
Important classes of workshops, such as workshop bake-houses, may be enumerated here.	Bakehouses	53
	Boot and Shoe Repairers	34
	Cloggers	10
	Dressmakers	35
	Milliners	11
	Tailors	15
	All Others	53
Total number of workshops on Register ...		211

5.—*OTHER MATTERS.*

Class.		Number.
Matters notified to H.M. Inspector of Factories:—		
Failure to affix Abstract of the Factory and Workshop Act (S. 133)		2
Action taken in matters referred by H M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (S. 5)	Notified by H.M. Inspector	6
	Reports (of action taken) sent to H.M. Inspector ...	6
Other		...
Underground Bakehouses (S. 101):—		
Certificates granted during the year		...
In use at the end of the year		1

Reports submitted to the Health Committee during the year 1908.

The Removal of Ashes and Excreta from Courts and Ill-ventilated Areas; the thorough Cleansing of the Pail-holes and Ashplaces.

The Paving and Cleansing of Common Courts and Yards.

Disinfectants and their uses.

Private Slaughter-houses.

Bacteriological Work.

Medical Inspection of School Children.

COUNTY BOROUGH OF WARRINGTON.

THE

Sanitary Inspector's Report

FOR THE

YEAR ENDING 31st DECEMBER, 1908.

To the Chairman and Members of the Health Committee.

Gentlemen,

I have pleasure in laying before you my Eighth Annual Report of the Sanitary Work and other duties carried out under the different Acts in connection therewith, rendering as far as possible a detailed account of nuisances abated and inspections made.

SUMMARY OF NUISANCES DEALT WITH DURING THE YEAR 1908.

Overcrowded houses	6
Dirty dwellings	2
Defective floors	37
,, walls and ceilings	20
,, roofs	156
,, spouting	321
,, slopstones and pipes	80
Want of slopstones and pipes	8
Untrapped drains	10
Blocked drains	367
Defective drains	14
Defective pavement in yards and passages	82
Damp basements	50
Pools of stagnant water	8

Defective pail closets and ashplaces	265
„ water-closets	4
Insufficient sanitary conveniences	2
Poultry kept so as to be a nuisance	6
Pigs kept so as to be a nuisance	1
Accumulation of manure	10
„ „ refuse...	19
Dirty Walls of passages and yards	206
Defective chimney flue	3
Choked gulleys	15
Dangerous yard and closet walls	9
Miscellaneous	45
Total	1746

Nuisances reported by Inspectors	1699
„ „ Inhabitants	47
Preliminary Notices sent calling attention to nuisances	427
Legal Notices served to abate nuisances ...	367

INFECTIOUS DISEASES.

As will be seen by the following statement the work under this section has been very heavy during the year 1908, and has occupied the whole time of one inspector.

Visits to premises where cases of Scarlet Fever, Diphtheria, or Enteric Fever occurred ...	457
Revisits to premises when cases of Scarlet Fever, Diphtheria, or Enteric Fever have been treated at home...	417
Visits to premises where cases of Phthisis are resident, or to houses where persons have died from this disease	290
Visits to premises where persons who have been in contact with cases of Smallpox (in other towns) have come to reside	10
Visits to homes of children reported by Education Department as being absent from school owing to various diseases	2812
Visits to homes where children are absent from school with Sore Throats	478
Visits to premises *re* cleansing and disinfection of premises after cases of infectious disease ...	123
Total	4587

All information obtained as to the above cases was submitted to the Medical Officer of Health, and the matters contained therein dealt with according to his instructions.

Attention was also paid to the disinfection of the premises, bedding, and clothing, especially after cases of notifiable infectious disease, and also to the cleansing and stripping of the walls where necessary.

1,273 Notices have been sent to the Headmasters or Mistresses of the various Schools in the Borough, intimating to them any case of infectious disease occurring amongst the scholars attending at their school, and also stating the period during which both the sufferer and any child who has been in contact must be excluded from school.

DISINFECTION.

Month.		Houses.		Articles.
1908—January	...	52	...	762
February	...	43	...	784
March	...	49	...	683
April	...	27	...	459
May	...	30	...	421
June	...	39	...	470
July	...	31	...	326
August	...	29	...	420
September	...	47	...	599
October	...	66	...	843
November	...	63	...	917
December	...	64	...	1154
	Total	540	Total	7838

SMOKE OBSERVATION.

This question has received special attention during the past year, and after making enquiries as to the time limits enforced in other manufacturing towns the Health Committee decided to fix the following as the standards, viz., that 3 consecutive minutes or a total of 5 minutes in a 30 minutes' observation be allowed for the emission of black smoke.

103 observations, each extending over a period of 30 minutes, have been taken, and in 11 cases black smoke was emitted for a longer period than is allowed by the standard fixed by the Committee. In each of the above intimation and statutory notices were served, and upon a second observation being taken with one exception considerable improvement was noted.

PROCEEDINGS UNDER THE SALE OF FOOD AND DRUGS AND MARGARINE ACTS.

During the year 201 samples have been submitted to the Public Analyst to be analysed. The following statement gives the number of genuine and adulterated samples, and the proceedings taken against the owners of the adulterated articles:—

Article.	Number of Samples examined.	Number found adulterated.	Remarks.
Milk	71 ...	5	The owners of the adulterated samples were dealt with as follows: In one case the dealer and farmer were brought before the Health Committee and cautioned. In the second case the dealer attended before the Committee and was warned. In the third case the owner of the sample was dealt with by the Town Clerk, and in the two remaining cases I was instructed to warn the dealers.
Butter	55 ...	3	The owner of one sample was proceeded against for two offences, viz.:—Selling margarine otherwise than in a wrapper marked in accordance with the Act, and for selling margarine for butter. The Magistrates fined defendant 10s. and costs, total £1 8s., for the first offence, and dismissed the latter case. The owner of the second adulterated sample was dealt with by the Health Committee. The third sample was purchased privately.
Cheese	8 ...	1	No action taken.
Margarine ...	3 ...	—	
Lard	1 ...	—	
Flour	2 ...	—	
Tea	4 ...	—	
Coffee	5 ...	—	
Sugar	1 ...	—	
Jam and confectionery ...	2 ...	1	Warned by Town Clerk.
Pepper	3 ...	—	
Beer	10 ...	—	
Sausages ...	5 ...	—	
Polony	4 ...	1	Manufacturer warned by Committee.
Corned beef ...	4 ...	1	,, ,,
Tongue	2 ...	1	,, ,,
Potted beef ...	1 ...	—	
Salmon and shrimp paste	1 ...	—	

Article.	Number of Samples examined.	Number found adulterated.	Remarks.
Chicken, ham and tongue ...	1	... —	
Salmon... ...	1	... —	
Lobster... ..	1	... —	
Sardines ...	1	... —	
Brawn	1	... 1	Informal sample.
Potted lobster ...	1	... 1	,, ,,
Lentils	1	.. —	
Ground rice ...	2	... —	
Preserved peas...	2	... —	
Baking powder...	1	... —	
Seed cake ...	1	... —	
Saffron	6	... 4	Informal samples.
Total ...	201	... 19	

In addition to the above, 23 more samples of milk were purchased either from the farmer's cart when delivering milk to the retailer within the Borough or at the farm premises after we had seen all the cows milked, to check those samples which the Public Analyst certified to be adulterated. The information obtained in this way is very useful, and in many cases prevents the innocent person from being prosecuted.

BAKEHOUSES.

235 Visits have been paid to the 55 Bakehouses which are in use within the Borough. The sanitary control of the Bakehouses is carried on under the Public Health Acts and the Factory and Workshops Acts (page 57).

COWSHEDS AND MILKSHOPS.

There are 77 Milkshops and 13 Registered Cowsheds within the Borough. 415 inspections have been made of the Milkshops, and 62 inspections of the Cowsheds and Cattle kept therein.

A Special Report on the condition of the Milkshops within the Borough was submitted to the Health Committee by the Medical Officer of Health and myself. Further legislation with respect to the retail of milk by small dealers is much required, as at the present time any person desiring to retail milk can apply to be registered, and his request must be complied with. We can, of course, stop the sale of milk from insanitary premises, but premises without coming under the term insanitary may be quite unsuitable for the storage or sale of milk.

COMMON LODGING-HOUSES.

There are 33 Common Lodging-houses within the Borough registered to accommodate 645 persons: 496 visits have been paid to them, and a strict watch kept over travellers lodging therein with a view to preventing the spread of infectious diseases, to see that there was no overcrowding and that the requirements of the byelaws were carried out. No cases of infectious sickness have been reported at registered Common Lodging-houses during the year.

HOUSES LET IN LODGINGS.

There are 37 houses within the Borough registered as above; 45 visits have been paid to them. The number of houses registered under the above heading have gradually diminished during the last ten years. As there are plenty of empty houses within the Borough, the practice of allowing two families to occupy one house has been prevented as far as possible.

CANAL BOATS.

78 Boats which were found berthed on the River Mersey within the Borough of Warrington were inspected during the year.

The following defects were found:—

3 defective cabin roofs.
2 ,, berth places.
1 ,, water cask.
1 cabin required painting.

The owners' attention was at once drawn to the defects found, and the work required to be done was put in hand and carried out—in two cases to the satisfaction of an Inspector for an adjoining district, who forwarded to me a certificate stating that the work had been done. The other defects were remedied while the boats remained within this Borough.

Five boats were met with no certificates on board. In four of the cases the trading name of the firm had been changed; the certificates had been handed in to a Registration Authority to have the necessary alterations made. This statement was verified on enquiry being made from the Authority. In the fifth case the certificate was produced by the owner.

No cases of infectious disease have been dealt with during the year 1908.

SLAUGHTER-HOUSES.

There are 19 Slaughter-houses within the Borough. During the year 1,300 visits have been paid to them. A Special Report upon the sanitary condition of each Slaughter-house was made and submitted to the Committee, and later a deputation from the Butchers' Association waited upon the Health Committee and discussed the recommendations set out in the Special Report. After this meeting a copy of the alterations required was sent to the licensee of each Slaughter-house with a request that the work be proceeded with at once. With this request several licensees at once endeavoured to comply, and the work was put in hand. It is to be hoped that all the suggested alterations and improvements will be shortly carried out.

UNWHOLESOME MEAT, FISH, ETC., DEALT WITH AND DESTROYED DURING THE YEAR.

Class of Articles.	Quantity.	No. of Persons dealt with by Committee.
BEEF	25466 lbs.	2
MUTTON	176 lbs.	...
PORK	653 lbs.	...
FISH	9048 lbs.	...
TRIPE	572 lbs.	...
RABBITS	41	...
VEGETABLES	1897 lbs.	...
PEARS...	9 boxes.	...

26 Carcases (20,769lbs.) of the above meat were surrendered by the Owners in consequence of the animals having been affected with Tuberculosis.

The references to the Borough Surveyor comprise blocked drains and defective pavement in streets and back passages.

The references to the Water Engineer are mainly defective fittings resulting in waste of water.

Those made to the Sanitary Superintendent are for want of ashtubs and pails, defective ashtubs or leaking pails, or the non-removal of house refuse.

REFERENCES TO OTHER DEPARTMENTS.

Referred to Borough Surveyor	55
,, ,, Water Engineer	15
,, ,, Sanitary Superintendent	116

CONTAGIOUS DISEASES (ANIMALS) ACTS AND ORDERS OF THE BOARD OF AGRICULTURE.

Swine Fever.

Two suspected cases of Swine Fever were reported by me to the Board of Agriculture during the year. The Board's Veterinary Inspector made enquiries into each case, and upon his report the Board stated that Swine Fever did exist in one case. The owners in both cases had all the swine upon their premises slaughtered.

Parasitic Mange Order of 1908.

One case of suspected Parasitic Mange was enquired into, but after examining the horse two veterinary surgeons gave certificates that the animal did not suffer from that disease.

Glanders or Farcy Order of 1907.

This Order extends to England and Wales and Scotland. It came into operation on the 1st day of January, 1908, but up to the end of the year no suspected case has been reported within this Borough.

The alteration made in the arrangement for granting movement licences by the Swine Fever (Regulation of Movement) Order of 1908, especially for swine being removed for immediate slaughter, must have been of considerable benefit to both pig keepers and butchers.

SUMMARY.

Workshops within the Borough			440
Bakehouses	,,	,,	55
Slaughter-houses	,,	,,	19
Milkshops	,,	,,	77
Cowsheds	,,	,,	13
Common Lodging-houses		,,	33
Houses Let in Lodgings		,,	37
Tripe Boilers		,,	3
Knackers Yard		,,	1

In conclusion my thanks are again due to the District Inspectors and Clerks for their valuable help in carrying out the work of the Department, which is constantly on the increase.

Their ready response to perform any duty devolving upon them is both gratifying and worthy of mention.

WALTER T. FLOOD,

Chief Inspector of Nuisances.

COUNTY BOROUGH OF WARRINGTON.

REPORT

BY

Dr. J. COOTE HIBBERT

(Medical Officer of Health),

ON

Outbreak of Typhoid Fever.

HEALTH DEPARTMENT,
MUNICIPAL OFFICES,
WARRINGTON,
25th FEBRUARY, 1908.

County Borough of Warrington.

Health Department,
Municipal Offices,
Warrington.

25th February, 1908.

To the Chairman and Members of the Health Committee.

Gentlemen,—

In compliance with the request of the Local Government Board, contained in their letter of the 13th inst. addressed to the Town Clerk, I beg to submit to you a further report on the cases of typhoid fever which have recently occurred in the Borough.

On January 28th I laid before you a report which dealt as far as possible with the outbreak of the disease up to January 25th. The report was as follows:—

Typhoid Fever.

"Since the beginning of this month eight cases of typhoid fever have been reported in the Borough, and five of these have been removed to the Hospital.

"As the onset of the disease is often very insidious, it is difficult to exactly determine this in any given case; but five out of the eight cases were apparently first taken ill about December 20th, thus being infected about 10—14 days before this (i.e., December 6th—10th).

"Three of these five cases had been to a Military Dance at the Parr Hall on December 13th, and this circumstance led to a suspicion falling on the Parr Hall, or food consumed there at the dance, as the origin of the infection in these cases. No further clue has been obtained from an enquiry as to the food supplied at the dance or from an examination of the sanitary arrangements of the hall, except that there was a possibility of water from the Appleton supply being used for drinking purposes.

"As regards the eight cases, one is a second case in the same household, and is, I learn from the medical attendant, a very doubtful case; another case is, in my opinion, not one of typhoid fever; and a third case is, according to the medical attendant, a very doubtful one. With these corrections, the total number of definite cases for the month (up to January 25th) is five, and one of these very probably contracted the disease out of Warrington.

"Although the Appleton water supply has been shown not to be the cause of any of these cases, still I think it is a possible source of danger to the Borough if used for domestic purposes, in that it is for the chief part an upland surface water collected from an area which is inhabited, and the land of which is under cultivation. Although the water passes through filter beds, these beds cannot be relied upon to always exclude dangerous pollution which may at any time find access to the water on the gathering ground.

"Although not supplied for drinking purposes, it undoubtedly is drunk by workmen and others. Those employers who have not already done so should be urged to take every precaution to prevent this practice, and I would suggest that they adopt some definite means of distinguishing the Appleton or trade supply from the Winwick or domestic supply. This might easily be done by the use of different taps."

Since January 25th, up to the present time (February 25th), one further case has been notified (January 27th), giving a total of nine notified cases since the beginning of the year. This patient has been removed to Hospital, but has presented no definite clinical symptoms of the disease, and Widal's reaction has given no confirmatory evidence of the case being one of typhoid fever.

A table has been prepared, and is appended, giving tabulated particulars of the nine cases which have been notified. From this summary it will be seen that only five of the nine cases are definitely those of typhoid fever. Up to the present two of the cases have terminated fatally (Nos. 2 and 7).

Source of Infection.

The source of infection has not been traced. No further evidence has been obtained connecting the Parr Hall with the cause of the outbreak, and, as a matter of fact, although some of the patients were at the dance at the hall on December 13th, the onset of the symptoms in these cases, about December 20th (except in one instance, No. 4), was too soon after the dance to point to that occasion as the time of the infection.

The general sanitary arrangements of the hall were found to be satisfactory, and samples of water taken from various taps on the premises, and submitted to bacteriological examination, were found to give no evidence of contamination.

Water Supply of the Borough.

The water supplied to the Borough for domestic purposes has been shown by regular bacteriological and chemical analysis to be above suspicion. The water is obtained from deep wells in the new red sandstone near Winwick, and the reports on the water herewith submitted are average examples of what are usually received from the Bacteriologist and Chemist.

The Appleton supply, which has been above referred to in my previous report, and which is chiefly an upland surface water, is supplied for trade purposes only, but, as I have stated, is undoubtedly drunk by the careless. This water, however, cannot be held responsible for the cases of typhoid fever which have occurred, for the bacteriological reports show it to be free from dangerous pollution ; and although the Public Analyst, in his report, has rightly condemned this water as unfit for drinking purposes, his figures also give no definite evidence of dangerous pollution.

Drainage and Method of Disposal of Excrement in Localities Affected.

The cases have arisen in various parts of the Borough, and are not limited to any district. The drainage and method of excrement disposal in the houses affected resemble those in other parts of the Borough, i.e., the surface and slop waters, and also the excrement from a few water closets, are carried off by sewers, while the greater part of the excrement is dealt with by the pail closet system.

The sanitary arrangements in these affected houses, and the defects, if any, found in connection therewith, are given in the table before referred to.

MEASURES TAKEN FOR CHECKING THE SPREAD OF THE DISEASE.

The cases are removed to Hospital, except in special instances, and the premises disinfected.

If a case is treated at home, where there is a pail closet, or if the Health Department is informed that a suspected case exists in such a house, special pails are supplied for the house, and those pails are specially removed and the contents specially dealt with.

A circular has been sent round to the medical practitioners, asking them to informally notify any suspected cases in their practice.

Warning has been given against the use of Appleton water for drinking purposes.

The sewers throughout the Borough have been thoroughly flushed.

Yours faithfully,

J. COOTE HIBBERT,

Medical Officer of Health.

SUMMARY OF CASES OF TYPHOID FEVER RECENTLY NOTIFIED IN THE BOROUGH OF WARRINGTON.

No.	Name.	Age.	Address.	Occupation.	Date of first symptom of illness.	Date of Notification of Disease.	Date of Removal to Hospital.	Widal Reaction.	Clinical aspect of Case.	Statement of whereabouts of Patients during three weeks preceding onset of disease.	Any suspected cause or any circumstances found to be common to two or more cases.	Result of Examination of Sanitary Arrangements of Patient's Residence.
1	Mrs. T.	32	3, Bowes St.	Housewife	Dec. 19/07	Jan. 7/08	Treated at home	Blood not examined	The Doctor informs me that this was a very doubtful case of typhoid fever	Said not to have been away from Warrington during three weeks	Nil	No defects inside premises Pail closet
2	Miss W.	26	The Rectory, Church St.	Rector's daughter	Dec. 20/07	Jan. 10/08	Treated at home	Blood not examined	That of typhoid fever	Left Warrington on Dec. 3rd on visit Westbere, nr. Canterbury, London, Dec. 10th Returned to Warrington Dec. 12th	?Contracted outside Warrington At dance at Parr Hall, Warrington, on Dec. 13th	No defects inside premises Outside:—Downspout connected to soil-pipe; brick drain in stable and several other minor defects 3 water closets and 1 pail closet
3	James H.	15	94, Lord Nelson St.	Wire-winder Rylands Bros.	Jan, 7/08	Jan. 14/08	Jan. 14/08	+	That of typhoid fever	Had not left Warrington	Nil	No defects Pail closet
4	Miss R	25	Feathers Hotel, Bridge St.	Proprietor's daughter engaged at home	Dec. 24/07	Jan. 15/08	Jan. 15/08	+	That of typhoid fever	Had not left Warrington	At dance at Parr Hall, Warrington, on Dec. 13th, 1907	Defective drain, untrapped from sewer laid under house: defective downspout connected directly with above drain and opening under lavatory window 3 water closets

SUMMARY OF CASES OF TYPHOID FEVER RECENTLY NOTIFIED IN THE BOROUGH OF WARRINGTON—*continued.*

No.	Name.	Age.	Address.	Occupation.	Date of first symptom of illness.	Date of Notification of Disease.	Date of Removal to Hospital.	Widal Reaction.	Clinical aspect of Case.	Statement of whereabouts of Patients during three weeks preceding onset of disease.	Any suspected cause or any circumstances found to be common to two or more cases.	Result of Examination of Sanitary Arrangements of Patient's Residence.
5	Mrs. P.	52	Town Hall, Warrington	Wife of hall-keeper	Doubtful illness, Dec. 1—10 — Again ill, Dec. 29/07	Jan. 16/08	Jan. 16/08	—	No definite symptoms of typhoid fever	Had not left Warrington	In charge of refreshment bar at the dance at Parr Hall, Warrington, Dec. 13th, 1907	No defects inside building Several minor drainage defects outside Water closets
6	Mrs. R	34	6, Whalley St.	Housewife Casual waitress	Dec. 20/07	Jan. 20/08	Jan. 20/08	+	That of typhoid fever	Had not left Warrington	Waitress in refreshment bar at the dance at Parr Hall, Warrington, Dec. 13th	No defects Pail closet
7	Mr. H.	23	66, Scott St.	Chainman Borough Surveyor's Office, Town Hall	Dec. 20/07	Jan. 21/08	Jan. 21/08	+	That of typhoid fever	Had not left Warrington	Nil	No defects Pail closet
8	Mr. W.	28	The Rectory, Church St.	Broker in Calcutta	Jan. 12/08	Jan. 25/08	Treated at home	Partial Re-action	Very doubtful case Patient subject to attacks of malarial fever	Returned to Warrington from India Dec. 12th, 1907	Resided at Rectory where sister (Case No 2) was ill with typhoid fever At dance at Parr Hall, Warrington, on Dec. 13th, 1907	See No. 2
9	Peter L.	16	70, Algernon St.	Labourer Richmond & Co.	Jan. 12/08	Jan. 27/08	Jan. 27/08	—	No definite symptons of typhoid fever	Had not left Warrington	Nil	No defects Pail closet

Bacteriological Report on Four Samples of Water taken from Various Taps in Parr Hall.

	Winwick Water.			Appleton Water.
	No. 18.	No. 19.	No. 20.	No. 21.
Date of taking......	Jan. 16.	Jan. 16.	Jan. 16.	Jan. 16.
Number of Bacteria per C.C.	25	19	17	15
Bacillus Coli Communis.	Absent in 100 C.C.	Present in 100 C.C. Absent in 90 C.C.	Absent in 100 C.C.	Absent in 100 C.C.
Bacillus Enteritidis Sporogenes	Absent.	Absent.	Absent.	Absent.

(Signed) R. BOYCE.

Thompson Yates Laboratories, University of Liverpool.

27th January, 1908.

Report of Public Analyst on Two Samples of Water,

Marked Nos. 18 and 19, taken on the 16th Jan. from Taps in Parr Hall.

The following are the results of my analyses, expressed in parts per 100,000 :—

	No. 18.	No. 19.
Free Ammonia	Free.	Free.
Albuminoid Ammonia	.003	.0014
Oxygen, absorbed 4 hours ...	Nil.	Nil.
Nitrogen as Nitrates	.60	.54
Chlorine	2.10	2.10
Solids, total	33.6	34.3
,, fixed	23.7	22.8

These are both excellent samples of water.

(Signed) FREDK. G. RUDDOCK, F.I.C.

4th February, 1908.

REPORT OF PUBLIC ANALYST ON A SAMPLE OF APPLETON WATER TAKEN ON THE 14TH NOV., 1907.

The following is the result of my analysis expressed in parts per 100,000 :—

Free Ammonia	.007
Albuminoid Ammonia	.021
Oxygen, 4 hours (absorbed)	.210
Nitrogen as Nitrates and Nitrites	.46
Chlorine	2.70
Solids, total	43.0
,, fixed	30.0

This is not a suitable water for drinking purposes, the figures of the analysis show it to be contaminated to an appreciable degree with organic matter.

(Signed) FREDK. G. RUDDOCK, F.I.C.

25th November, 1907.

BACTERIOLOGICAL REPORT ON TWO SAMPLES OF APPLETON WATER.

No. 30 was taken immediately after the water had left the Filter Bed. No. 31 from a tap in town.

	No. 30.	No. 31.
Date of taking	Jan. 29th.	Jan. 29th.
Number of Bacteria per C.C.	55	38
Bacillus Coli Communis	Absent in 100 C.C.	Absent in 100 C.C.
Bacillus Enteritidis Sporogenes	Absent.	Absent.

(Signed) R. BOYCE.

Thompson Yates Laboratories, University of Liverpool.
February 8th, 1908.

BACTERIOLOGICAL REPORT ON THREE SAMPLES OF WATER OBTAINED AT WINWICK WORKS.

No. 1 from Delph Lane Pumping Station. No. 2, Winwick Pumping Station. No. 3 from Reservoir of Mixed Water.

	No. 1.	No. 2.	No. 3.
Date of taking (1907)...	Oct. 9th.	Oct. 9th.	Oct. 9th.
Number of Bacteria per C.C.	9	5	66
Bacillus Coli Communis	Present in 100 C.C. Absent in 90 C.C.	Absent in 100 C.C.	Present in 60 C.C. Absent in 50 C.C.
Bacillus Enteritidis Sporogenes	Absent.	Absent.	Absent.

(Signed) R. BOYCE.

Thompson Yates Laboratories, University of Liverpool.
12th October, 1907.

REPORT OF PUBLIC ANALYST ON TWO SAMPLES OF WINWICK WATER TAKEN ON THE 14TH NOV., 1907 (Nos. 5 and 6).

The following are the results of my analyses expressed in parts per 100,000:—

	No. 5.	No. 6.
Free Ammonia	.001	.0008
Albuminoid Ammonia	.0014	.0011
Oxygen 4 hours (absorbed)	.0013	Nil.
Nitrogen as Nitrates and Nitrites	.60	.50
Chlorine	2.10	2.00
Solids, total	30.0	31.0
,, fixed	23.0	21.0

Both these waters are of excellent quality. No. 5 shows slightly larger quantities of ammonia, oxygen absorbed from permanganate, and chlorine, but the amounts are very small.

(Signed) FREDK. G. RUDDOCK, F.I.C.

25th November, 1907.

[*Copy of Circular Letter sent to the Medical Practitioners of the Borough.*]

County Borough of Warrington.

Public Health Department,
Bank House, Sankey Street,
Warrington, 1st Feb., 1908.

Dear Sir,

As the pail system of sewage removal is adopted in Warrington, and as it is desirable to supply a special pail and to deal specially with the excreta in any case of suspected typhoid fever, I shall be glad if you will let me know of any case when there is any suspicion of the disease, so that the above precautions may be taken.

The intimation thus sent to me will be treated as strictly confidential, and will entail no further steps than the above on the part of the Health Department until the case is formally notified by you.

Yours faithfully,

(Signed) J. COOTE HIBBERT,

Medical Officer of Health.

[*Copy of Circular Letter sent to the Medical Practitioners of the Borough.*]

County Borough of Warrington.

Public Health Department,
Bank House, Sankey Street,
Warrington, 1st Feb., 1908.

Dear Sir,

I beg to inform you that a bacteriological laboratory has been fitted up by the Corporation at Aikin Street Hospital, where bacteriological examinations, with a view to aiding the diagnosis of diphtheria, typhoid fever, and pulmonary tuberculosis, will be undertaken for medical men in their practice in the Borough.

Outfits for transmitting the specimens to the laboratory may be obtained from the Health Department, Town Hall, or from the Hospital. These specimens should be sent by messenger either to Aikin Street Hospital, or, if more convenient, to the Health Department, Town Hall (week days, other than Saturday, up to 5 p.m.; Saturday, up to 12.30 p.m.).

I will take this opportunity of urging the free use of the laboratory, especially in connection with cases of sore throat of a doubtful nature, and also before the notification of any suspected case of diphtheria, which may be removed to Hospital on receipt of notification (except in well marked or urgent cases).

I would also draw attention to the help obtained from the Widal reaction in the diagnosis of cases of typhoid fever after the first week of illness.

Yours faithfully,

(Signed) J. COOTE HIBBERT,

Medical Officer of Health.